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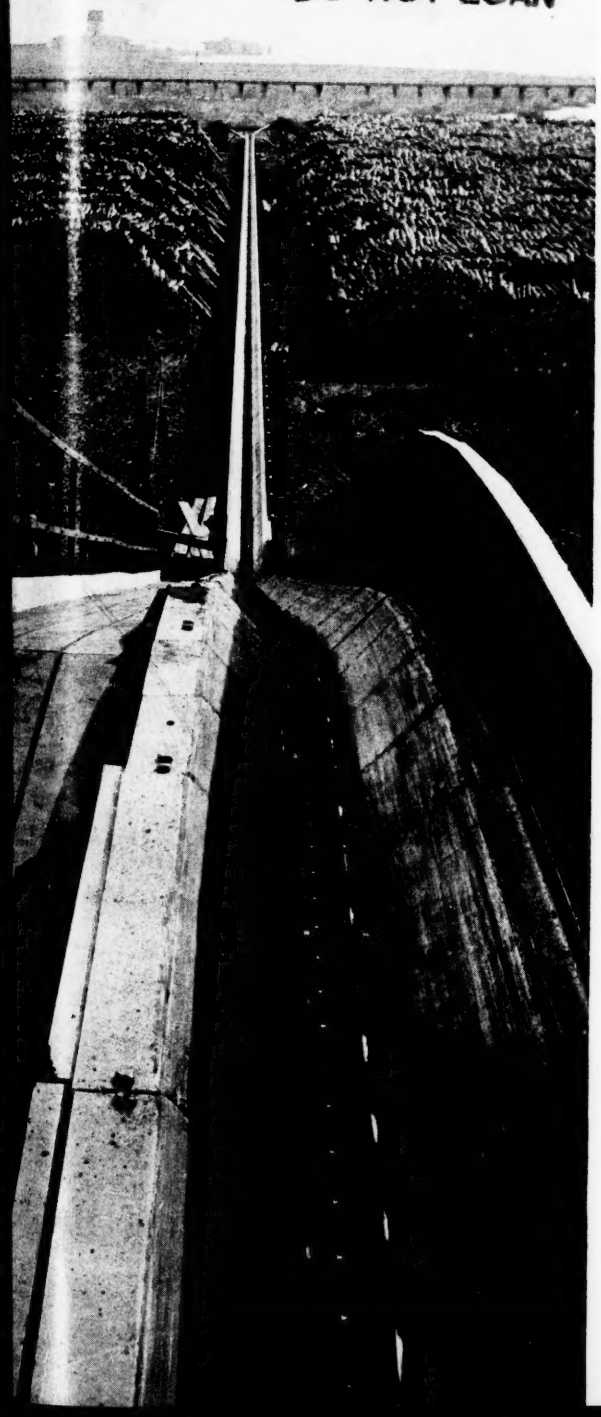

AN ERA BEGINS

The building of a newsprint mill in Texas is an industrial event of great importance.

It is the beginning of a Southern industry that will eventually supply from Southern pine, America's $150,000,000 yearly requirement of newsprint paper.

The South now makes annually 1,600,000 tons of pulp and paper of all kinds. Twelve new mills underway will increase its production 750,000 tons.

Importations last year of foreign pulp and paper were more than $200,000,000.

MARCH, 1937

• NEWSPRINT FROM SOUTHERN PINE • ELECTRICAL OUTPUT REACHES NEW PEAK IN THE SOUTH • TAX LIMITATION OR EXEMPTION? • REHABILITATION FOLLOWS THE FLOOD • $58,990,000 CONSTRUCTION AWARDS •

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MARCH 1937

Volume CVI No. 3

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

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Grading Blue Ridge Parkway in North Carolina—Photo Courtesy U. S. Bureau of Public Roads

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WHITHER?

IN an article in this place recently under the heading "Fair Play," the MANUFACTURERS RECORD called attention to the indispensable part industry takes in the country's progress.

The reason for stressing the point at a time when industry is eager to go ahead, is the unceasing clamor of a class of loose-thinkers who would remake everything. They have gained prominence in the press apparently for no better reason than their ability to provide overnight a new scheme, no matter how wild, to remedy every condition of mankind.

These apostles of "the More Abundant Life" cry aloud about the awful condition of affairs not in Europe nor Asia, but in America. Their campaign has been to build up widespread hatred for those who have acquired any material gain through hard work. These are now "princes of privilege" and "economic royalists."

The campaign has been carried on in a virulent way, aided by a tremendous propaganda machine. Thrift, saving, hard work, even the right to claim possession of one's property are thrown out of the window. Extravagance, shorter hours, more money—always more money—are the accepted ideas, while the trespasser can sit down in your plant and have law enforcement authorities debate with him whether he is acting legally or illegally. Law enforcement in Michigan stops and the President according to the Associated Press wires Governor Murphy, "the thanks of the nation for a high public service nobly performed."

All of this while the objectives of the administration are still obscure. The only clear thing is that spending must keep on and life in America be remade. Farmers, if they have not done well, must not be blamed for laziness or indifference, but must be moved to different ground where it is expected they will work whether they want to or not.

Wage earners must give up part of their wage every week to be placed in the hands of political management, when it will be more than forty years before many of the young workers can, under the law, get any benefit. Security for old age and unemployment! Untold billions left in the hands of Congress. What is to be the temper and purpose of succeeding Congresses? Are we headed toward economy, toward safe management of trust funds? Where is the proof? As the money piles up there will be the temptation to divert it, and politicians have broken faith with the public in their diversion of gas tax funds. These, however, are only a drop in the bucket compared with the colossal billions that politicians will have at their disposal in the future.

While this goes on, and the things that have built America are flouted and cast aside, is it any wonder that men question the future?

To complete the structure of confusion there comes the most momentous proposal of all—the remaking of the Supreme Court. The reaction to this is the most gratifying indication of the real temper of America that has appeared since the depression started. Protests in volume have come from every state against such an outrageous proposal. The leading papers of the South admit the scheme is a step that goes too far.

The MANUFACTURERS RECORD does not find it pleasant to speak of disquieting things. Its work has been upbuilding, but it would be derelict if it did not unceasingly direct attention to the fallacy and futility of the course the government is pursuing. The excuse that business is better does not supply an answer. How can business not be better with the money that has been poured out, and yet these billions must be paid back if we are not to have repudiation and its attendant awfulness.

When America knows there is to be a determined effort to balance the budget; when it is assured the gold content of the dollar will not be further reduced; that labor will no longer be permitted to run things with a high hand, however deserving labor may be of a higher wage; that Federal interference and competition with private business will stop, and that industry is entitled to a profit besides an ample surplus for a rainy day; when there is any assurance along these lines, business will go ahead with such a surge there is no gauge by which to measure the prosperity that will come. Its dimensions will be beyond anything that has gone before.

America's wealth of resources, the character of its people, have made its history of unexampled progress. It now is being held back by the jumble of reformers and remedies that in large part have been unnecessary.

It is well at times to dwell upon the blessings Americans enjoy, just as the apostles of change dwell so insistently upon the reverse. Our people in the main live in comfortable homes, lighted by electricity, with modern conveniences, with the radio and automobile

in almost universal use. They partake of a quality of food and have creature comforts that over a major part of the globe are regarded as unattainable luxuries.

The claptrap being handed out about everything in America being wrong is the most absurd untruth, and likewise the most tremendously costly doctrine ever preached. We are told so insistently so many things must be changed that it would be something to be laughed at if it was not being turned into a tragedy in a land teeming with wealth.

There are so many adjustments to be made, according to the reformers, we wonder if we are not in the worst country instead of the best. As a result, through their insistent propaganda, there is confusion of mind, confusion of objectives, except that strong men are holding fast to the principles that have been responsible for the country's growth and these principles include the refusal to spend other people's money without knowing how it can be paid back. These principles go back to ancient times, when it was said "In the sweat of thy face shalt thou eat bread."

It has taken longer to get out of the depression because of the crackpot vagaries to which the country has been subjected, and longer than it would have taken if we had let the states handle their own affairs, and not tried to regulate every human activity from Washington.

BUSINESS ADVANCES

AMERICAN business withstood several shocks during February that reflected the vigor and recuperative power of the present improving trend. Unprecedented floods in the upper Mississippi Valley, labor disturbances provoked by outside agitators which disorganized industries in many parts of the country, and uncertainties of new, far-reaching legislative proposals failed to check the upward business spiral.

During February general business activity was about 20 per cent above the level of a year ago.

The South is sharing in the present forward movement. It has maintained the trade volume reached during the upswing of 1936. Construction has been active.

Contracts let for engineering and building work during the first two months of 1937 amounted to more than $133,171,000, while $491,000,000 of contracts to be awarded were reported by the DAILY CONSTRUCTION BULLETIN during this period, indicating the extent of the work carried over and expected to be undertaken in the coming months.

Most significant in this construction activity is the $78,000,000 of awards for private engineering and building operations since January 1. Another feature of the year's construction activity in the South to date is the large amount of industrial plant awards, which reached $55,000,000 at the end of February. Projected industrial construction for the two months was $184,000,000. These include further expansion of the South's pulp and paper industry, which has made phenomenal growth in the past 12 months, and miscellaneous manufacturing enterprises that are adding to the diversification and development of the South's industrial capacity.

Two industries that furnish an accurate gauge of the country's activity are railroads and power utilities. The volume of goods moved as measured by car loadings, is now above the level of last winter and headed toward the highest point since 1930. Electrical output in 1936 for public use, which showed a gain of 14 per cent for the country and 18 per cent in the South over the record high of 1935, continues upward. The weekly gains so far this year over the corresponding weeks of 1936 have been approximately 12 per cent. By the end of February more than 17,800,000,000 kilowatt-hours of electricity was produced by the light and power industry of the United States as compared with 15,537,000,000 kilowatt-hours produced during the corresponding period of 1936.

The textile industry, with more than 80 per cent of the operation in the South, set an all-time record of activity during January and the operations continue at peak levels.

The iron and steel making rate, which is now 50 per cent above the first two months of 1936, was only slightly affected by the February flood situation. Operations in the Birmingham and other Southern districts are comparable to 1930 activity. Demand and prices have been rising together.

Furniture factories have been more active than for several years.

Shortages of durable goods are being replaced and at increasing prices which stimulates forward buying.

Farm income which has been rising with January sales amounting to more than $626,000,000 as compared with $550,000,000 in January a year ago, shows a 14 per cent gain. Fertilizer sales in the South made a gain of 22 per cent in January compared with a year ago, and the tonnage sold was the largest for any January since 1930.

Industrial wages have advanced as more workers have entered private employment. This has helped to swell the retail sales and speed up the general turnover of mercantile stocks. Employment declined only seasonally during January and February. Continued increase in business activity at the same rate as between 1933 and 1936 will cause a general labor shortage by 1940, is the view of the National Industrial Conference Board. In fact a shortage of skilled labor is now felt in some lines. Wage rates are higher and further increases are expected.

This impressive record, made in spite of unfavorable circumstances any one of which might be calculated to have given business a serious set-back, is definitely encouraging and points particularly to the wealth of new opportunities in the South. Its vast resources, the surface of which have been barely scratched, await only the hand of capital and capable men to be utilized for the enjoyment and profit of the entire Nation. A start has been made to use the millions of acres of Southern pine land for a new industry of great possibilities—the manufacture of newsprint. This in turn offers the chemist still another challenge to find valuable by-products for use in home and factory—and so it goes into countless avenues of opportunity.

STOPPING DEVELOPMENT

BUSINESS men of the South, realizing the need for industrial development that will diversify the South's activities and utilize its vast supply of raw materials of mine, forest and farm, are carefully scrutinizing the tax proposals of Southern legislative bodies. There is evident a tendency to enact laws which will hamper business expansion. The essential fact is ignored that business supplies a major part of government revenue, and before this is available, business must be allowed to earn a profit.

A case in point is the Severance tax bill before the General Assembly of Georgia. This proposes a production tax of 2 per cent on the value of clay at the mine. Extending through Georgia is the world's largest kaolin belt. These deposits are partially developed, and clearly the attitude of Georgia's law-making body should be to encourage the expansion of this development instead of considering tax laws that inevitably will hinder it.

The tax law in question, as a matter of fact, goes much further than the clay industry. It embraces the following:

> "Section 1. That for the year 1937 and for each subsequent year a tax is hereby levied upon all natural resources severed from the soil or water for commercial purposes, including timber, minerals such as oil, gas, sulphur, salt, coal, lignite, and ores, also marble, stone, granite, gravel, sand, shells and other natural deposits. Such taxes shall be paid by the person or persons, firm or corporation, severing such natural resources from the soil or water."

On oil and gas a 3 per cent tax is proposed on the gross market value of the unmanufactured product, and a 2 per cent tax on all other natural resources.

There is another bill which would abolish the present Georgia Department of Forestry and Geological Development, and establish in its place a new department of natural resources. This would administer the severance tax and be clothed with police and court authority. Commenting on these proposed laws, a Georgia business man writes:

> "If there is any consistency, even common sense, in having a Department which on one hand is charged with development and expansion of the natural resources, and on the other hand is to impose and collect taxes, then I know nothing about the philosophy or the psychology of industrial development. The Bill even includes timber cut, logs, pulpwood and the balance, and also gum for naval stores."

Georgia is at the threshold of a great expansion. New plants in the advancing pulp and paper industry of the South, as one illustration, have made large investments in Georgia. It will be most unfortunate if legislation is adopted that will penalize this industry that is destined to create for the South a vast fund of new wealth. The same thing holds true of other industries now considering the development of resources that have been partially or wholly unutilized up to the present.

With a total of more than $225,000,000 invested in industrial expansion in the South in recent months, this section is again experiencing a development that is commanding the attention of the whole country. Many Southern states are actively engaged in encouraging industry to expand. For legislative bodies to consider at this time the enactment of hampering laws aimed at legitimate industry would be a grave mistake.

FOREIGN COMPETITION

DESPITE the marked increase in construction throughout the United States, American cement plants are operating far below capacity. As pointed out elsewhere in this issue in an article "Protect American Industry and Workers From Unfair Foreign Competition," the continued entry of cement under our present tariff policy is detrimental to the industry and to employment of American labor. The rapid growth of cement imports entering the United States and its possessions, is shown in the comparative figures for 1934 of 261,844 barrels, 617,022 barrels in 1935 and more than 1,460,000 barrels in 1936.

As it is estimated that 122 man-days of labor are required in the production of 1,000 barrels of cement, cement importations last year deprived approximately 178,000 American workers of one day's employment. The average wage rate paid in American cement plants is 57 cents an hour which is from more than double to ten times the wage rate paid to foreign cement workers. Ocean cargo rates are from 30 cents to 40 cents a barrel as compared with the American railroad freight rate of 42 cents to 57 cents from the interior to coast cities. It is true that the imports of cement so far are but a fraction of the total cement consumption of the United States, but a small shipment of cheap foreign cement often establishes a below cost competitive price that is injurious to the whole domestic cement industry.

Any foreign trade policy that adversely affects the activity of American cement mills also curtails the activity of many other industries. In one year before the depression American cement producers purchased the following:

11,000,000 tons of coal.
4,500,000 barrels of fuel oil.
24,000,000 cu. ft. of natural gas.
165,000,000 cloth sacks.
200,000,000 paper bags.
47,000 miles of wire.
34,000,000 pounds of lubricants.
200 miles of belting.
23,000,000 pounds of explosives.
970,000 tons of gypsum.
5,700,000 bricks for kilns.

The transportation of this huge volume of materials is another important factor in considering the place of the American cement industry in the business of the nation.

Shall the United States reduce its wage level to the foreign level, or protect American industry and labor through an adequate tariff?

The cement industry is only one of many domestic producers, including products of American farms, which are facing the cheap foreign competition. Imports have been increasing in total volume at a proportionately greater rate than have exports. Last year we bought from abroad in excess of $2,421,000,000 of foreign commodities as compared with $2,038,000,000 in 1935. Our exports in 1936 were valued at $2,453,000,000 and in 1935, $2,282,000,000. The net balance of merchandise exports declined to $34,258,000 in 1936 from $235,389,000 in 1935, and $477,745,000 in 1934. The 1936 export balance was the smallest since 1895.

SOUTHERN NEWSPRINT

Rapid Expansion of Paper Making in the South Is a Timely Development to Meet Threatened World Shortage of Paper in Next Two Years

By

Howard L. Clark

WITH the recent announcement of a $5,000,000 plant to be erected in East Texas for the manufacture of newsprint from Southern pine, the subject of newsprint making in the South has come to a head. This initial unit undoubtedly will be followed by the establishment of mills in other sections of the South.

The rapid kraft pulp and paper expansion, with a total investment of over $60,000,000 in about 14 months, has dominated Southern pulp and paper making activity. Many articles on the paper making possibilities of the South have been published in the MANUFACTURERS RECORD in past years, but the actual erection of a newsprint mill in Texas is none the less a revolutionizing industrial movement.

The experimental work of Dr. Charles H. Herty in proving that white paper and newsprint could be made at low cost from Southern pine, and the enlightened efforts of the Southern Newspaper Publishers Association to bring about the erection of a newsprint mill are now bearing fruit.

With one new kraft mill operating and two additions being made, nine others under way, the $5,000,000 newsprint mill proposed in Texas and the latest proposed $3,275,000 kraft mill at Jacksonville, Fla., for the National Container Corporation, all in a period of a little more than a year, a new development record is set. They will add approximately 750,000 tons to the kraft pulp and paper capacity of the South, which has caused questions to be raised as to the available pulpwood resources of this region.

Ample Pulpwood Resources

AS to the pulpwood resources of the South, estimates show that this section can produce 50,000,000 cords of pulpwood a year while our present consumption is about 12,000,000 cords for the production of paper. This assumes apparently ample reserves for the requirements of the rapidly expanding pulp manufacturing facilities.

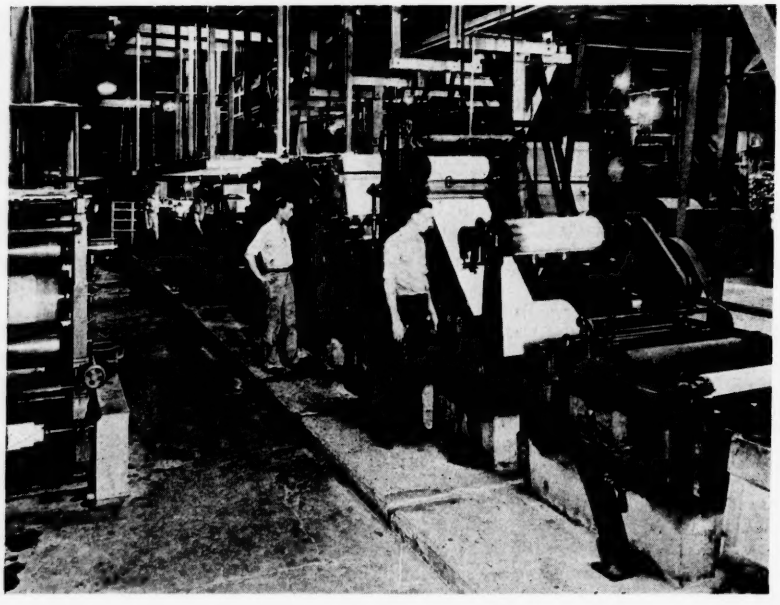
Cultivated pines that reached 13 feet in height and 4 to 5 inches in diameter from 5-inch seedlings in 3 years and a half, indicating they will attain commercial pulpwood size in 7 years as contrasted with 10 to 12 years required for Southern forest grown pine.

Developing Future Supply

TO assure, however, increasing future supplies it is essential that the South adopt a broad program of reforestation and protection for its pulpwood resources. In the meantime sound development and progress of the South's woodpulp and paper making industry call for studied conservation of the supply of new material. Production of Southern pine as a crop is of utmost importance. Due to the climatic advantages and quick growing pine, tests have been made proving that pine trees from seven to ten years of age, under proper forestation methods, are commercially profitable for pulping purposes.

Commenting on the proposed newsprint mill in Texas and to the possibility of the establishment of another unit east of the Mississippi River in the immediate future, James G. Stahlman, president of the Nashville *Banner* and one of the prime movers in the establishment of newsprint mills in the South, says the new industry must look beyond the present and use adequate conservation methods and a system of cultivation of pines as a crop to insure a continuous future supply of pulpwood.

The Origin of a New Industry for the South
Newsprint paper being made from the pulp from small pine trees at the Savannah Pulp and Paper Laboratory where Dr. Charles H. Herty continues investigations in the use of the pine trees for paper, alpha-cellulose for Rayon, and other commodities.



His opinion of the policy which should be pursued with reference to the protection of Southern timber lands, as a result of the growing paper industry, is summed up in the following:

"The newsprint industry in the South should be an effort of conservation, rather than one of destruction. From the very beginning, Dr. Herty has preached that doctrine. He has proved by actual demonstration that Southern pine of the several varieties can be grown to commercial size in a much shorter period than Northern, domestic or Canadian spruce. He has advocated right along the cultivation of pine as a crop and this will be essential, if the newsprint and collateral industries are to be developed and preserved in the South.

"We cannot afford to denude the 200,000,000 acres of pinelands which are standing, but we must engage in a definite program of reforestation, protection and cultivation, in order to keep our timber lands from being completely destroyed. Such a program is much easier of consummation in the South than elsewhere, by reason of the long growing season, conducive to quick and substantial growth.

"The newspapers of the South, in all of this movement of ours to interest the rest of the world in our efforts to manufacture newsprint, have preached the program of conservation and crop production of pine and they will continue to do so.

"This program in the South will, likewise, be productive of the planting of millions of heretofore vacant acres of practically useless and worthless land and the cash crop coming from such lands regularly will be a God-send to certain areas."

A Timely Expansion

IN following the sound policy of conservation, the South can build a paper industry to fully supply the paper demand of America and make us forever independent of foreign pulp and paper imports which were in excess of $222,000,000 in 1936.

The further development of a paper industry in the South not only adds wealth and creates employment in manufacturing and distribution, but opens a cash market to farm owners of woodlands as well as to owners of large timber tracts. Next to the great textile expansion of the South in the past 25 years, no industrial movement is of greater importance to the entire country.

It is most timely that the South is developing a great paper industry because of predictions that within two years there will be a permanent shortage of world paper supplies. Lord Rothermere, publisher of great British newspapers and manufacturer of paper in Canada, is quoted as urging Canadian mill owners to boost paper prices because of his belief in the coming shortage. Therefore, with the South entering the white paper and newsprint production field and able to make paper at a cost of around $27 a ton as compared with $47, it has opportunities to be the chief source of American paper and become a paper exporter instead of importer.

Paper and Paperboard Output

PRODUCTION of paper and paperboard in the United States, according to preliminary census figures recently released for 1935, amounted to 10,506,195 tons valued at $656,115,565, of which 1,221,871 tons were newsprint and similar papers valued at $49,496,538. The total value of all paper products for 617 reporting mills was $711,793,000, a gain of 26.9 per cent over 1933 but 26.4 per cent under the output of 1929.

In 1935, the paper and paperboard production of 14 Southern states was approximately 1,600,000 tons valued at over $80,000,000. This production will be increased approximately 750,000 tons with the completion of the new mills that have been started in the past 18 months.

The quantity and value of paper and paperboard, for the several Southern states for which individual figures are available for 1935 amount to:

	Tons	Value
Louisiana	**449,214**	**$22,309,369**
Maryland	**131,076**	**7,994,912**
Tennessee	**90,175**	**3,893,162**
Virginia	**355,525**	**20,983,256**
West Virginia .	**46,991**	**3,426,953**

Other Southern states producing paper are Alabama, Arkansas, Florida, Georgia, Mississippi, Missouri, North Carolina, South Carolina, Texas, and the District of Columbia, some of which have a larger output than those listed separately.

The average number of wage earners in the paper industry of the United States in 1935 was 103,345 who received $110,200,000. The industry expended for materials, fuel and power more than $429,000,000.

Paper and Paperboard—Production, by Kind, Quantity, and Value, 1935

Kind	Quantity (Short ton)	Value
Paper and paperboard, total	10,506,195	$656,115,565
Produced for sale	7,729,907	502,269,724
Produced for transfer to other plants of same company	1,786,584	92,339,264
Produced for use in same plant	989,704	61,506,577
Newsprint and similar papers, total	1,221,871	49,496,538
Newsprint, standard in rolls and sheets	947,717	33,353,967
Hanging	105,177	5,764,542
Catalog	79,979	5,777,329
Novel news and news tablet	45,588	1,894,795
Poster, lining, etc.	43,410	2,705,905
Book paper, total	1,281,870	112,608,975
Machine-finished, sized and supercalendered:		
Free from ground wood	762,170	69,472,149
Containing ground wood	110,707	6,796,824
Body stock for coated paper:		
Free from ground wood	195,412	17,357,805
Containing ground wood	115,475	7,920,441
Lithograph	16,444	1,647,377
Offset	41,774	5,064,629
Text paper	6,096	951,760
Other book paper	33,792	3,397,990
Cover paper	20,806	3,710,430
Writing paper (fine), total	541,083	73,105,846
One hundred per cent rag	10,253	5,944,674
Less than 100% to 50% rag	29,403	9,465,114
Less than 50% rag	36,046	7,669,099
Sulphite bond	283,411	31,498,116
Other chemical wood-pulp writing papers	181,970	18,528,843
Wrapping paper, total	1,605,457	125,196,748

(*Continued on page 32*)

Pulpwood Cut and Ready for Delivery to Mill
Union Bag & Paper Co., Savannah

Double Plowed Lane for Fire Protection in Slash Pine Forest of Southeast

	Tons	Value
Unbleached sulphite wrapping	195,415	$13,335,352
Bleached sulphite wrapping	92,445	9,507,809
Sulphite for bags	17,879	1,632,223
Kraft:		
For bags	394,576	25,195,321
Other	590,208	40,984,350
Greaseproof	12,404	2,256,370
Glassine	37,346	8,011,249
Vegetable and other imitation parchment	14,161	1,812,675
Bogus and screenings	19,881	732,729
Heavy (mill wrappers, etc.)	36,066	1,728,768
Rope, jute, etc.	23,110	3,686,447
Ground wood and chemical manila	24,864	1,805,628
Tag board, light manila board, and pattern	51,887	4,936,881
Other wrapping paper	95,215	9,570,946
Tissue paper, total	473,314	46,235,141
Toilet	223,721	17,318,094
High-grade (cigarette, condenser, carbon, etc.)	29,927	5,738,862
Wrapping	67,340	9,411,120
Napkin	40,726	4,220,524
Towel	65,462	4,328,915
Waxing	46,138	5,217,626
Absorbent paper, total	95,179	15,911,243
Blotting	10,082	1,673,334
Filter	1,186	291,458
Matrix paper and board	3,245	1,380,395
For vulcanized fiber.	10,916	1,675,028
Other absorbent paper (including paper for parchmentizing)[1]	69,750	10,891,028
Building paper, total	463,143	21,084,716
Sheathing papers	33,509	1,131,440
Felts and other building papers	407,195	18,318,327
Asbestos-filled and asbestos paper	22,439	1,634,949
Other paper	80,582	8,662,602
Boards, total	4,722,890	200,103,326
Container boards:		
Liners:		
Kraft	710,323	31,049,706
Jute	801,086	29,637,706
Other	104,384	3,999,729
Chip (plain and test)	410,489	11,948,682
Straw (for corrugated container use)	346,415	12,333,944
Folding box boards (bending):		
Manila-lined (all lined boards:	778,734	34,462,808
Patent-coated	181,350	9,572,934
Other folding box boards (including shell and unlined boards)	187,462	7,660,682
Set-up boards (nonbending):		
Chip and straw	279,032	10,209,266
Newsboard	210,799	7,493,712
Other (including tube, egg-case filler, pasted news, and pasted chip boards)	131,242	5,040,146
Binder's board	61,603	4,351,752
Cardboard, total	103,053	8,768,545
Bristol board	72,257	6,834,189
Other	30,796	1,934,356
Leatherboard	35,789	3,325,516
Pressboard	7,216	947,224
Other boards[2]	373,893	19,300,974

[1] Figures for paper for parchmentizing included to avoid disclosing data for individual establishments.

[2] Figures include data for "wallboard," "insulating board," and "other building boards."

Origin of Paper Making

IN a booklet prepared by the West Virginia Pulp and Paper Co., on "A Story of Papermaking," the production of paper is described as an art or process of interweaving fibrous material to form a flat surface or sheet. The technology includes a knowledge of structural botany, chemistry, hydraulics, and electricity.

Paper making dates back to about 700 B. C. to the Egyptian papyrus made from reeds, then followed parchment made from the skins of sheep and goats, and Chinese paper, the forerunner of our modern paper industry. While China had been making paper from bark and rags since 105 A. D., the art did not reach Europe until about 1100 A. D. The possible use of wood as a paper making material was first suggested in the Western world by a French scientist in the year 1600. The industry was introduced into the American Colonies in 1690 when a mill was built near Philadelphia to make linen paper from flax.

Paper Making Materials

WOOD, grasses, seed hairs such as cotton, furnish vegetable fiber to form the body of a sheet of paper. These fibers are basically cellulose. In the present day, wood is the chief source of cellulose in the form of fibers. Before these can be put into paper they must be prepared by the pulp maker, who has several methods of obtaining the fibers.

How Pulp is Made

METHODS of obtaining the fibers are constantly being improved, the latest development being the making of newsprint and white paper from Southern pine heretofore considered unavailable because of its high resinous content. Now bleached woodpulp of a high alpha cellulose content can be made from Southern pine, thus adding an immense raw material source not only for woodpulp but for cellulose in the making of rayon or artificial silk products.

Pulp making is divided into two classes; the mechanical and the chemical.

The mechanical process is the separation of the fiber by grinding or rubbing the wood against a rough stone. The product is known as groundwood pulp, and when mixed with about 25 per cent chemical pulp (sulphite) is the main constituent of newsprint.

Chemical pulps are obtained from four distinct processes.

Rag pulp, the oldest process, uses rags or cloth trimmings which is cooked with lime or soda liquors and produces the purest and most durable cellulose fibers which originate in the cotton plant or flax stem.

Soda pulp is produced from broadleaf woods, cooked under pressure with caustic soda, and yields a soft easy-bleaching fiber used mainly in books and blotting paper.

Sulphite pulp involves the cooking of the wood under a definite temperature and pressure with acid sulphur solutions having lime or sodium bases which dissolve the cementing materials and separate the fibers. Coniferous or evergreen

$222,000,000 Pulp and Paper Imports in 1936

Imports of paper base stocks and manufactured paper in 1936 amounted to more than $222,000,000. Imports of paper base stocks, including pulpwood logs and woodpulp, rags and all other pulp, according to the Department of Commerce, were valued at $98,919,000, a gain of 21 per cent over 1935. Imports of paper and manufactures during 1936 totaled $110,112,000, a gain of 18 per cent over 1935. All other paper totaled $13,392,000 in 1936, or a gain of 20 per cent.

Pulpwood stock imports amounted to 1,209,760 cords and woodpulp imports were 2,277,500 tons, the latter showing a gain of nearly 18 per cent in 1935. In 1936 more than 2,751,000 tons of newsprint were imported, or a gain of 15.4 per cent over 1935.

woods are generally used, giving a strong, easy-bleaching pulp.

Sulphate or kraft pulp, a modification of the soda process, involves the cooking of coniferous woods with sodium sulphide (from sodium sulphate) and sodium hydroxide under pressure. The pulp is darker and more difficult to bleach, but is stronger than the pulp made from the sulphite process. It is used chiefly for paper bags and wrapping paper.

Waste paper pulp is made from waste magazines, books, etc., being cooked with soda ash or caustic soda, bleached and washed to remove the ink, and used by many in place of soda pulp.

In preparation of woodpulp, wood is received in 5-foot lengths, free of bark and well seasoned. It is washed, chipped by revolving knives and stored in bins. From the bins the chipped wood is dropped into large steel tanks, or cookers, known as digesters and cooked with the chemical solution required according to the type of process used in the particular mill. The process involves grinding, washing, screening and bleaching.

Making Pulp into Paper

IN making pulp into paper, the fibers or pulp compose 80 to 90 per cent of the material and is likened to flour in the baking of a cake which requires flour, flavoring, mixing and baking. The seasoning is the adding of the size, generally sodium resinate, wax, or glue, to render the fibers ink or moisture proof. Coated paper may be compared to the icing on a cake to improve appearance, and in the case of paper improves the printing surface.

Modern paper is made upon a machine known as the Fourdrinier where the paper stock is thinned to 1 per cent of material to 99 per cent water and run through wire screens onto the machine wire, an endless sieve-like belt where a shaking motion assists the felting of the fibers and passes over vacuum boxes and vacuum rolls which removes water and smoothes the surface into sheets. It is then pressed, dried by steamheated drums or dryers. All materials such as clay, chalk, size, carried away in the white water leaving the machine, are separated by hydraulic or mechanical means and the solids and water returned to the beaters or paper machines again.

Steps in the process of paper making are:

Pulpwood cutting in the forest; log haulage; washer; chipper; screen; chipper storage; digesting; washing pan; blending; screen; washer; bleacher; washer; bleached pulp storage; beater; chest; Jordan; screen; fourdrinier; presses; dryers; calender; reel; trimmer; storage; shipment. If the product is to be coated it goes from the reel to the coater; dryer; festoon; reel; calender; cutter; storage; shipment.

Materials Required to Make 100 Pounds of Sulphite Paper*

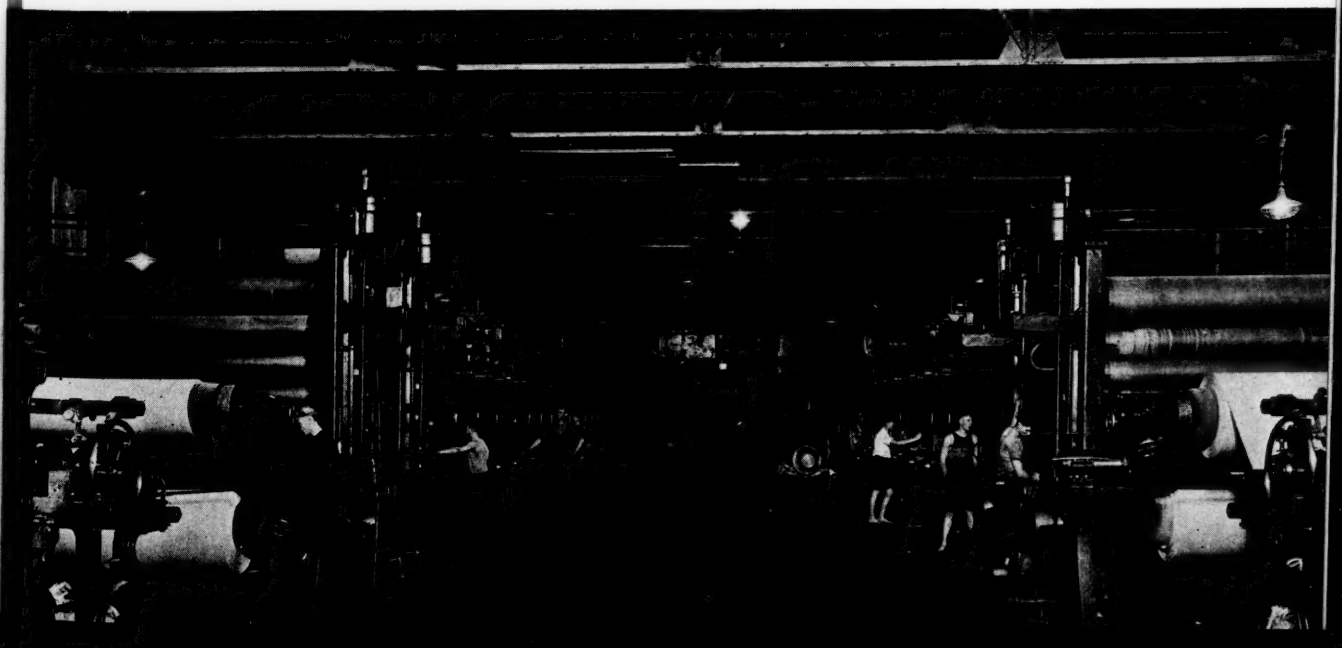
Wood (13.4 cu. ft.)	**335 lbs.**
Sulphur	**12.7 lbs.**
Limestone	**17.5 lbs.**
Kerosene	**5.7 ozs.**
Bleach powder	**14.3 lbs.**
Rosin	**3 lbs.**
Soda	**515 lbs.**
Alum	**4.2 lbs.**
Lime	**3.17 ozs.**
Color (dye)	**1.8 ozs.**
Coal	**320 lbs.**
Copper sulphate	**.19 ozs.**
Iron sulphate	**.79 ozs.**
Belts	**2 sq. in.**
Wire	**67 sq. cm.**
Lubricating oil	**220 cu. cm.**
Water-filtered	**5000 gals.**

*Figures compiled from American Pulp and Paper Association data and published in A Story of Papermaking.

Products of Paper

BESIDES white paper of all kinds, newsprint and the coarser kraft paper, linerboard, and box board there is almost an infinite variety of uses of the products of the pulp and paper industry. Not only in the manufacture of paper but in developing plants for the use of paper there are opened new opportunities for the South with the utilization of its pine forest resources.

Paper products plants for the making of boxes, milk containers, linoleum, shoe soles, organ tubes, car wheels, bandages, furniture, raincoats, water pails, toys, insulation, towels, aeroplane fabric, twine, mulch, handkerchiefs, explosives, sausage skins, cellophane, artificial silk, and hundreds of other articles requiring a cellulose base, are some of the outlets for Southern pulp and paper. There are many by-products of the paper industry including turpentine, rosin, alcohol, acetone, cymene, chloroform, hydrochloric acid, liquid chlorine, activated carbons, core binder, chalk, and other chemicals. One of the by-products coming into greater use is lignin which is being used as a binder in surfacing roads, and has possibilities in the making of plastics.



Fourdrinier Paper Machine

Pulpwood From Round and Turpentined Pine

A report has been issued on the "Investigation in Pulpwood Production From Round and Turpentined Longleaf Pine" by the Southern Forest Experiment Station, New Orleans. Describing methods used and giving costs and stompage returns, it is one of a series of investigations planned to cover all Southern forest types in which pulpwood is cut extensively.

Pulp and Paper

In the article "What's Next for Pulp and Paper?" by Warren T. White, General Industrial Agent, Seaboard Air Line Railway, published in the February MANUFACTURERS RECORD, the last two paragraphs were erroneously credited to Mr. White. They were the editorial comment of the MANUFACTURERS RECORD, and should have been so designated, showing the number of new mills recently established in the South and giving estimates of the potential investment in Southern paper making and allied industries and volume of kraft and newsprint production.

ELECTRICAL PRODUCTION REACHES NEW PEAK

South Makes Larger Percentage Gain Over 1935 Than Rest of Country. Southern Power Plants Consumed Over 5,845,000 Tons of Coal, 3,563,000 Barrels of Oil, and 80,741,000,000 Cu. Ft. of Gas in 1936

REFLECTING the steadily expanding industrial development and business activity of the Southern States, production of electricity for public use in that area amounted to more than 24,365,000,000 kilowatt-hours in 1936. Based on comparable figures, compiled by the Federal Power Commission, this is the largest production yet recorded for the South. The increase in output over 1935 was in excess of 18 per cent as compared with less than 13 per cent for the rest of the country. Electricity produced by water power in the South amounted to 11,170,000,000 kilowatt-hours and 13,195,000,000 kilowatt-hours were produced by fuel generated power. The increase in hydro-electric output over 1935 was 9 per cent and a 28 per cent gain was made in power output from fuel-using plants.

Increased Fuel Consumption

To produce the 24,365,000,000 kilowatt-hours of electricity, Southern power companies, in addition to the hydro-electric energy, consumed 5,845,000 tons of coal, 3,563,000 barrels of oil, and 80,741,000,000 cu. ft. of gas. There was a gain over 1935 in coal consumption of nearly 33 per cent, 11 per cent in oil, and over 28 per cent in gas.

In total electrical output for public use, the South Atlantic States headed other Southern regions with 13,746,000,000 kilowatt-hours, 7,137,000,000 kilowatt-hours being produced by water power and 6,609,000,000 kilowatt-hours by the use of fuel. The increase in total production was 20 per cent over 1935, a 34 per cent gain being made in the electrical production of fuel power plants. The South West Central States produced 5,634,000,000 kilowatt-hours of which 5,466,000,000 kilowatt-hours were by fuel power plants. Electrical production by the East South Central States was 4,985,000,000 kilowatt-hours of which 3,865,000,000 kilowatt-hours were by water power plants.

Generating Capacity

The generating capacity of Southern power plants is 8,025,000 kilowatts, about 24 per cent of the country's total power utility installation. The steam power capacity of Southern plants is 4,918,321 kilowatts, hydro-electric 2,839,861 kilowatts and internal combusion engine generation 267,058 kilowatts. There are more than 5,015,000 customers of electricity produced by Southern power companies of which 158,930 are farm users; 3,991,772 residential users; 786,622 small commercial users; 58,966 large commercial users; 11,277 street lighting; 60 railroads and 7,488 miscellaneous. To supply these customers, Southern power systems operate more than 77,178 circuit miles of line.

Record Output in 1936

The Edison Electric Institute calls attention to the fact that in 1936 the power output of the country exceeded 100,000,000,000 kilowatt-hours for the first time. Preliminary figures issued by the Federal Power Commission indicate a total output of 113,473,000,000 kilowatt-hours, which is an increase of 14 per cent over the previous maximum in 1935.

The country's production of electricity by the use of water power was about 40,893,000,000 kilowatt-hours, or 2 per cent more than in 1935, and amounted to 36 per cent of the total. The percentage for 1936 indicates that despite the abnormal conditions experienced in the drought area the production of hydro-electricity is maintaining its relative position with respect to other sources of power.

Increased Fuel Consumption Efficiency

The preliminary data indicates that the fuel rate for 1936 will be about 1.45 pounds per kilowatt-hour as compared with 1.46 pounds per kilowatt-hours in 1935. An analysis of all steam plants using coal for fuel shows the coal rate is 1.49 pounds per kilowatt-hour. Since these data include coal used in plants held in reserve and operated intermittently, it is not representative of good practice. Some of the more efficient steam plants are producing a kilowatt-hour with approximately eight-tenths of a pound of coal at the present time.

The output of central stations, both publically and privately owned, electric railway plants, steam railroads generat-

Steam Electric Station Uses Natural Gas for Fuel, Louisiana Power & Light Co.

ing electricity for traction, and Bureau of Reclamation plants and that part of the output of manufacturing plants which is sold are included in the figures compiled by the Federal Power Commission.

More Electricity Used at Lower Cost to Consumer

In its annual statistical bulletin, the Edison Electric Institute, shows that all classes of industrial customers purchased 15.3 per cent more electricity in 1936 than in 1935, and paid only 7.7 per cent more for their service last year than in the preceding 12 months.

At the close of 1936, the unit cost of electricity in the average home was 46 per cent below 1913, as contrasted with the cost of living which was 44 per cent above 1913. In 1913 the average residential customer paid $29.87 for 428 kilowatt hours. In 1936 he paid about $33.72 for 719 kilowatt hours. He is receiving 291 kilowatt hours per year and paying only $4 more for it. This increment cost for the additional energy is one and one-third cents per kilowatt hour.

Considerations that have favorably affected the annual production per kilowatt of generating capacity during the past several years, include:

Sales promotion programs and encouragement of "off-peak" sales to bring about an improvement in the daily load curve, and advances in effective interconnection to reduce the requirement for reserve capacity and to permit longer hours of use of generators.

$100,000,000 for Expansion in South

Total construction expenditures for 1936 were estimated at $275,000,000, less than one-third of the record 1930 expenditures, but a gain of 43 per cent over 1935.

Production of Electricity for Public Use in the South

Regions	By Use of Water Power (Kilowatt Hours) 1936	Increase Over 1935 Per Cent	By Use of Fuel (Kilowatt Hours)* 1936	Increase Over 1935 Per Cent	Total Production (Kilowatt Hours) 1936	Increase Over 1935 Per cent
South Atlantic	7,137,000,000	10	6,609,000,000	34	13,746,000,000	20
East South Central	3,865,000,000	12	1,120,000,000	50	4,985,000,000	19
West South Central	168,000,000	*41	5,466,000,000	19	5,634,000,000	15
Total	11,170,000,000	9	13,195,000,000	28	24,365,000,000	18
United States	40,893,000,000	2	72,580,000,000	22	113,473,000,000	14

* Decrease.

Annual Consumption of Fuels in Generating Electricity for Public Use in the South

Regions	Coal (Tons) 1936	Increase Over 1935 Per Cent	Oil (Barrels) 1936	Increase Over 1935 Per Cent	Gas (Cu. Ft.) 1936	Increase Over 1935 Per cent
South Atlantic	4,076,000	34	2,548,000	9	2,682,000,000	87
East South Central	880,000	47	112,000	14	5,465,000,000	22
West South Central	889,000	16	903,000	18	72,594,000,000	19
Total	5,845,000	33	3,563,000	11	80,741,000,000	28
United States	41,973,000	21	14,110,000	24	155,525,000,000	24

From preliminary plans of Southern power companies, as estimated by the MANUFACTURERS RECORD in its February issue, and proposed work on Federal power projects, more than $100,000,000 is to be expended for construction and expansion during 1937 in the Southern States.

Plans now under way provide for the addition of considerable generating capacity in 1937 and 1938. Much of the new capacity will be installed as additional units in existing stations or as high pressure units super-imposed on existing medium pressure units.

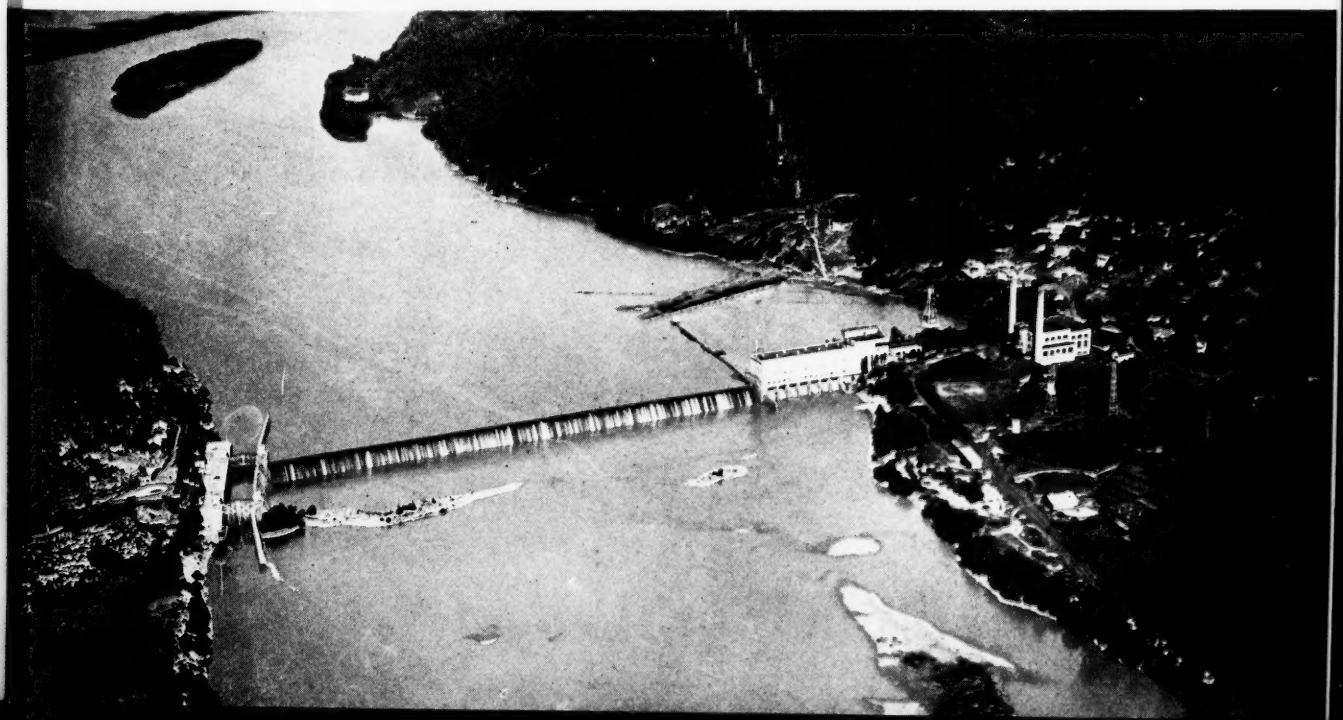
The industry has been conducting such national promotional programs as the "Better Light-Better Sight" cooperative sales program, the "Electrical Housewares" and modernization campaigns, and rural electrification. As a result of this policy dealers other than the utilities in 1936 sold over $452,000,000 worth of merchandise, which was 85 per cent of the total of such sales.

Sales Revenue and Taxes

Total revenue from electricity sales to ultimate consumers aggregated $2,058,000,000 compared with $1,911,988,000 for 1935, an increase of $146,311,000. Revenue per kilowatt-hour for all classes of service in 1936 was 2.30 cents compared with 2.46 cents in 1935, a decrease of 6.5 per cent.

Aside from the effect of the Federal surtax, figures for which are not available as yet, the total taxes of privately owned electric light and power companies is estimated to have been $266,000,000, an increase of $11,000,000 over the total tax in 1935. Federal taxes amounted to about one-third of the total taxes paid. Taxes paid by privately-owned electric utilities represent an amount twice the cost of fuel, and three-fourths of the annual payroll.

Hydro and Steam Electric Plants, Tennessee Electric Power Co.



THE PLACE OF FORESTS

Their Management and Use in Southern Agricultural and Industrial Economy

By

E. W. Tinker*

Assistant Chief, United States Forest Service

THE forests of the South have formed a vital part of its economy, both agriculturally and industrially. They have afforded a major opportunity for employment. They have been major producers of taxes and of freight. The lumber manufacturing industry found in the South an almost unparalleled opportunity. This industry has contributed not only to the prosperity of the South but to the upbuilding of the Middle West and of the East, both agriculturally and industrially. This same industry still forms an important part in the South's industrial structure. The continuity of wood using industries is so vital to its future economy that a continuous supply of raw material should be of vital concern.

THE South has been blessed with climatic and soil conditions that make the production of forests an attractive enterprise. The growth is rapid and the risks are comparatively small. Up to this time the opportunities, from a business standpoint, that exist through the use of land for the production of tree crops have been little appreciated.

Because of favorable conditions and species, second growth forests have resulted from a harvesting process that gave the re-establishment of the stands little or no consideration. The second growth stands offer a source of raw material that, if properly managed, should form the basis for a continued agricultural and industrial economy insuring a continued and growing prosperity for the South. Lack of consideration of the future and lack of planwise harvesting within second growth forests, will inevitably result in an appalling waste of the productivity of the land, a migratory population, low standards of living and temporary rather than permanent investments. It will further inevitably result in a breakdown of local political units through loss of tax base. The situation offers a challenge and a responsibility to the agricultural and forestry agencies, as well as the statecraft of the Southern region.

With the diminishing source of supply of old growth timber in the Southern states, more and more consideration has been given to the potentialities of the second growth stands that have been prolifically established. To a large extent, consideration has been given to the utilization of these stands without due regard to future productivity.

Second-Growth Loblolly Pine 31 Years Old With Trees 71 Feet Tall in Louisiana

An illustration of what may be expected from reforestation work in the South

AN enormous new industry is being developed in the Southern states in the production of pulp from Southern woods. I am informed that a total capital investment in plant establishment will approach $60,000,000 and further developments are being considered. These investments will require commensurate returns and these returns will be based upon one of two plans:

The corporate structures will either proceed to liquidate their investment on the basis of existing supplies or raw material; or, proceeding with carefully worked out plans, establish their plants with due consideration to the future based upon a permanent economy of forest production. It is distinctly contrary to the public interests that the former basis be used. Not only is it contrary to the public interest but to the interests of the stockholders as well and certainly it is not in the interests of labor, to whom security and permanence is possibly more vital than its daily wage.

The pulp industry can and does use material of small size and if its harvesting practices in the woods are not based upon consideration of future production of the land and guided by well-defined plans, with proper technical guidance, it is certain that irreparable damage will be done. The cutting of stands of second growth down to a four inch limit, with improved fire protection and with consequent following burns, will leave the land nonproductive for many years to come. The introduction of proper silvicultural practices and the formulation of proper management plans for areas tributary to these mills, can result in an orderly and planwise utilization of second growth forests, without additional cost, but with a tremendous difference to the future of the South and to the public welfare. The choice is clear and not subject to misinterpretation.

THE timber lands of the South should be managed on the basis of their productivity as a business enterprise and made to pay a reasonable re-

(Continued on page 70)

TAX LIMITATION--- OR TAX EXEMPTION?

By

Herbert U. Nelson

Secretary, National Association of Real Estate Boards

Wave of Legislation for Tax Exemption of Homes and Farms Shows Strength of Movement Against Tax Confiscation

IN every decade of our development from an agricultural to an industrial people, homes, farms, and structures that shelter our commerce and industry have been carrying a heavier share of government costs. It took the unprecedented depression of the past few years, with its tax delinquencies bogging down the revenues of government in State after State, to bring to public attention just how far our mediaeval *ad valorem* tax system is out of line with the economics of our present day life. The depression showed us the weakness of depending on property taxes for practically the sole support of our schools and our other local governmental services. It has shown also the degree to which the ordinary *ad valorem tax* has become a tax confiscation of homes and of farms and of commercial and industrial structures.

For the past four years we have had for the first time under discussion in practically every State a clear-cut program for practical real estate tax relief. As a result the whole long-continued movement for modernizing our State tax structures has begun to be translated into legislative action. In this advance the Southern states are having a notable part. With more prosperous conditions now in sight the present year will probably be the critical year for tax modernization on any thorough-going plan. It is important for every group concerned with real estate assets to realize this.

After years of research as to existing State tax systems and discussion between State groups, the National Association of Real Estate Boards in January, 1933, adopted a suggested plan of action for the individual States which included three primary proposals shown in the next column.

Nine States Have Over-All Limits

The following over-all limitations are now in force in nine States: Ohio has a 1% limit; Indiana 1% limit on farms and a 1½% limit on urban property; Michigan a 1½% limitation; Rhode Island one of 2½%. The State of Washington limits to 2%; New Mexico, 2%; Oklahoma, 1¼%. West Virginia has a limit running from ½ of 1% on farms to 2% on some kinds of urban property. In the case of Ohio, Michigan, West Virginia and New Mexico the limitation has been written into the State constitution. In a referendum vote in Nevada in November, the voters approved a limitation of 5% on the assessed value for all purposes.

Action Toward Which Other States Are Now Moving

With legislatures convened or to convene this year in 45 States, reports to the committee on real estate taxation of the National Association of Real Estate Boards from its 600 members in 450 communities indicate that in something like a third of the states, legislation will be asked to create such a tax limit or to strengthen the existing limitation.

In a number of states this movement will be supplemented by request for specific legislation to base the valuation of real estate for tax purposes on its warranted annual productivity, utility, or income.

Real estate tax limitation is expected to be a sharp issue in the Florida legislature. Walter W. Rose, Orlando, Florida, past president of the National Association of Real Estate Boards and a member of the Florida Senate, will lead the movement for a bill to submit the matter to the people in the form of a constitutional amendment. There may be included in this measure a plank for valuation of real property for tax purposes solely by the income method.

Florida has tax exemption of homesteads up to $5,000 in value. If a limitation on the real estate tax is imposed, home owners, farms, and owners of other real estate in Florida will be in a stronger and safer position with respect to taxes than in any other State.

In Georgia there are high hopes that Governor Rivers will get behind a movement for comprehensive State and local tax adjustment. The Georgia Real Estate Association has asked the Governor to appoint a commission to plan a complete tax revision program.

Oklahoma is discussing possible rewording of its limitation law to strengthen the measure and to this end is considering bringing in the principle that in valuation for tax purposes the income value should be a major consideration.

Many other States are proposing modernization of real estate tax laws with the movement gaining in Maryland and Texas.

Homestead Tax Exemption

In the meantime, the pressure to get away from tax confiscation of homes and farms has caused a spontaneous popular movement for homestead tax exemption. This proposal has gotten far enough so that it has been adopted in some form by eight States and by the territory of Hawaii. It is evident that if public officials will not play fair with real estate, the owners of homes and farms will take the matter into their own hands.

The movement for tax exemptions for homesteads has gone far enough already so that: Arkansas gives exemption for first $1,000 of assessed value, with limit of $2,500 exemption at discretion of the legislature; North Carolina permits legislature to exempt homesteads up to $1,000 of assessed value; Utah gives a straight $2,000 exemption; Florida has a $5,000 homestead exemption; Louisiana, one of $2,000; Mississippi, one of $1,000; Oklahoma, one of $1,500; Hawaii, one of $4,500; and Texas, one of $3,000 for State taxes only.

The program for a general limitation on real estate taxes of approximately 1% of the value per annum is simpler and fairer for everyone concerned than are exemptions. It is apparent, however, that if the tax gatherers cannot be convinced of this fact, they will face direct action by the home owners themselves wherever this is possible.

(*Continued on page 72*)

PRIMARY PROPOSALS FOR STATE ACTION

1. That in each State there be a constitutional over-all limit upon the total rate that may be levied on real estate in any one year, adding together the levy of State government, county government, municipal government, school district, park district and any other governmental units.

2. That State laws require that in valuing real property for tax purposes the assessor do what any sound appraiser must do—take account of the income or annual use value of the property.

3. That in each State school costs be drawn not from local taxation exclusively but in large part at least from State revenues, so they may have a broader tax base. (Until this third proposal in the Association's program began to get acceptance, 90% of the entire cost of the public schools of the United States was drawn from the general property tax).

REHABILITATION FOLLOWS THE FLOOD

GOVERNOR Lloyd C. Stark of Missouri has called a conference of Governors of 10 States in the flood area to consider damage to highways and request Federal aid for their rehabilitation. The meeting is to be held in St. Louis March 12, in connection with the general flood conference of the Mississippi Valley Association. Damage throughout the area has been estimated from $300,000,000 to $500,000,000, including highways and other public improvements, railroads and other private property.

Reconstruction Under Way

As these and other conferences on flood control matters are being scheduled, general rehabilitation has been pushed from Cincinnati south. In Cincinnati, more than 10,000 dwellings were in the worst flooded area, 2,321 business houses were affected to some extent including 531 manufacturing establishments, most of them small concerns.

Flood damage at Louisville, like that at Cincinnati, was extensive. Preliminary estimates of the loss reach $50,000,000 More than 45,000 residences and buildings were inundated or touched by water. More than 2,700 stores and houses were reported as unsafe. Reconstruction is proceeding as rapidly as conditions permit.

While flood damage to plants and equipment is less than was first anticipated, most of the expenditures being for clean-up work and losses due to suspension of activities, there will be need for repairs and replacements of much machinery.

More cement, more steel and building materials of all kinds, tools, farm implements, pumps, road making equipment, heating plants, fixtures, furniture, glass and house appliances will be required.

Railroads Other Utilities and Industrial Concerns Rushed to Aid Stricken Area

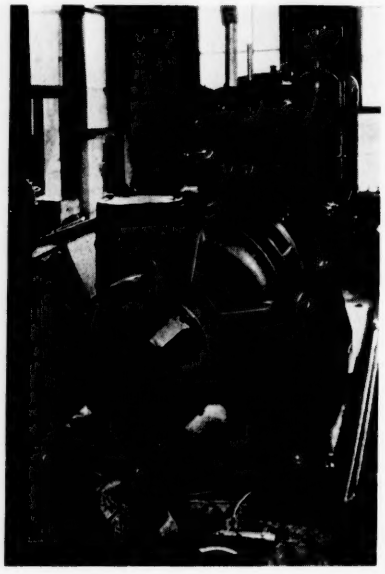
Five railroads, the Baltimore & Ohio, Pennsylvania, Illinois Central, New York Central and Louisville & Nashville have planned to handle increased volume of freight into the area as they mobilized their service to aid relief work at the time of the flood.

Hundreds of special trains were rushed into the area hauling food, drinking water and other essential things from medicine to lifeboats. More than 200,000 refugees were carried to places of safety on rescue trains. A 45-ton transformer was rushed to provide light to the inundated section of Louisville, which required the building of special track to connect with the lines on high ground. Refugees were housed in Pullmans, day coaches and box cars. Food was furnished to thousands from dining cars.

Although the Louisville & Nashville Railroad's general office building in Louisville was surrounded by water and without heat, part of the time without lights, telephone connections with the outside were maintained for five days. Carloads of sand bags and 200 cars of loose dirt were delivered to threatened points of the Cairo levee. Railroad locomotives were used to supply heat or steam to get plants in operation. Nearly 700 empty cars were rushed in solid trains through Washington from North Atlantic cities into the South to augment the supply available there. Similar action was taken by the railroads in the Southeast and by railroads west of the Mississippi River. With every gateway across the Ohio below Pittsburgh closed by the flood, the railroads handled the regular commerce between North and South with a minimum of interruption by a system of rerouting freight and passengers through the open gateways of Memphis, Pittsburgh, Washington and Hagerstown. In this work, as well as in the marshaling of extra coal cars to enable mines outside the flooded area to remain in operation, the Car Service Division of the Association of American Railroads cooperated.

Diesel-electric generating set for emergency lighting in plant of C. Lee Cook Co., Louisville

To meet emergency needs at Louisville, Ky., during the recent high floods, five compact Diesel electric generating sets of various sizes were rushed to Louisville from the plant of the Caterpillar Tractor Company at Peoria, Ill. The shipment, which was handled by a caravan of large truck trailers, was complete, including switchboards, timbers to base up the units, accessory equipment and wiring, pulleys and cables to move the units into position. "Caterpillar" Diesel and electric mechanics, electricians and engineers were flown to the scene in special planes to put the units in operation for power and light service.



Besides the relief work of railroads, other utilities and industrial concerns did their share. The railroads, in addition to reconstructing their own property damaged by the flood, are prepared to handle the transportation of rehabilitation materials into the area.

While Memphis, itself, was not affected since it is on a high bluff, backwaters of Wolf River and Honeonnah Creek, two tributaries which enter the Mississippi north and south of Memphis respectively caused approximately $1,250,000 damage. This consists of $500,000 damage to private homes, another $500,000 to streets, sewers and mains, and $250,000 to industrial and commercial property in the areas.

Early Reports Exaggerated Losses

Early reports greatly exaggerated the damage in the lower flood area. Other centers, like Memphis, have been included among those suffering heavy losses. For instance, Blytheville, Ark., according to the Chamber of Commerce, did not have any flood water and there was no industrial damage nor curtailment of local activity during the flood period. Actually Blytheville was the operating base for the CCC units sent into the area, rail and motor road traffic was not interrupted, U. S. Highway No. 61, from St. Louis to Memphis at no time being closed.

Flood damage to houses and barns in the country districts of nine States, including Kentucky, Tennessee, Mississippi and Louisiana, amounts to more than $28,000,000. Many farm dwellings have been seriously damaged or swept away and 13,795 families in the area have required Red Cross assistance.

The new Federal Agency, a $20,000,000 corporation, formed to lend money to flood victims in the Ohio and Mississippi valleys, will provide credit to Flood sufferers who cannot give sufficient guarantees for loans from other Government and private lending agencies.

Rehabilitation of the entire area will take many months. Municipal utilities, waterworks, sewers, etc., were practically wrecked and streets need extensive repairs or rebuilding. Many small communities cannot be reoccupied until May or June.

Extensive Flood Control Plans

In the meanwhile, plans are going forward for more flood control operations not only in the Ohio and Mississippi valleys but in other flood threatened regions. A system of reservoirs will be urged on the upper reaches of the rivers to relieve the pressure on levees in time of flood, in connection with a long-time program dealing with reforestation and prevention of soil erosion. This would take 20 years and require the expenditure of a minimum of $1,000,000,000. In the meanwhile 270 flood control projects in 31 states have been authorized at a cost of $300,000,000 by the Flood Control Act of 1936. Large future expenditures will be required for this work in addition to the immense sums to be spent in the next several weeks for repairs and improvements to flood damaged property.

PROTECT AMERICAN INDUSTRY AND WORKERS

American Purchases of Cotton Goods, Cement and Other Products From Abroad, if Divided Among Domestic Producers, Would Greatly Increase Employment in the United States

By

Charles P. Postelle

Southern Sales Manager
Alpha Portland Cement Co.

AMERICAN labor receives higher wages, works fewer hours each day and enjoys better living conditions than workers in other countries. Operating under our American system of government and free enterprise, American labor has privileges and opportunities not comparable elsewhere. Constant vigilance is required to guard against cheap foreign competition that would break down this high standard.

Our more recent immigration laws have been enacted with the view of protecting American labor against an influx of cheap foreign labor. This is a worthwhile law. It seems inconsistent to enforce our immigration law and yet allow a flood of low-priced foreign material, made by the labor of the low paid wage-earners of Japan, Russia and European countries, to enter American ports in competition with goods manufactured under the high wage scale and short hours prevailing in American industries.

On top of the present laws and labor policies, a thirty-hour week law is being advocated in Congress. I have no quarrel with this proposed law, but can American industry comply with further NRA schemes and added laws such as are proposed under the Black thirty-hour week bill and hope to compete with low-priced imports?

American industry asks no favors from Government that would give it an unfair competitive price against foreign shippers. American industry only asks for a tariff that will assure it and American labor a fair protection against cheap foreign goods, and particularly does American industry ask for help on goods that, in addition to the unfair competition of low-wage paid foreign labor, can be clearly shown as being dumped into this country.

The first great industry in America to sign NRA codes was our cotton goods industry. Can American cotton manufacturers compete with the extremely low wages paid by the Japanese manufacturer and live up to the principles they have established in the treatment of American labor?

One of the great American industries that is adversely affected by cheap foreign competition is the Portland cement industry, especially in the area from Maine to Texas and on the West Coast. Portland cement is one of the cheapest products going into the construction field. The industry not only employs thousands of men directly and represents millions of invested capital, but helps indirectly thousands of other wage earners in the railroad, oil, coal, cotton and other lines, and is probably the fourth greatest customer of American railroads. Can the American Portland cement industry, which is still following nearly 100 per cent the principles of the NRA and is paying wages from five to ten times as high as the foreign mills, hope to compete with the foreign cement manufacturer when the tariff is only 16 cents to 22 cents a barrel and the foreign cement shippers are underselling the American product from 60 cents to $1.25 per barrel? The amount of foreign cement brought into the South alone during 1936, if divided among the Southern producers, would have meant a profitable operation for some of the mills that incurred a loss.

If it is worthwhile to help our American standard of living through the enforcement of the immigration law, it is worthwhile to further strengthen this standard of living by raising our tariff to afford proper protection to American industries and labor, or at least by enforcing our present antidumping law.

MIAMI RIVER FLOOD CONTROL DEMONSTRATES ITS EFFICIENCY

By

C. S. Bennett

Engineer
The Miami Conservancy District

DURING the Ohio Valley flood of January, 1937, the flood control works of the Miami Conservancy District in the Miami Valley of southwestern Ohio received the greatest test since their completion in 1912.

It is estimated that the maximum discharge in January of the Miami River at Dayton under conditions existing before the construction of the works would have exceeded 85,000 second-feet and considerable property damage would have resulted under those conditions. No damage was suffered by any of the works of the District during the recent high water.

The works utilize a combination of retarding dams and channel improvements to provide protection to Dayton and eight other cities along the Miami River. They were constructed after the great flood of 1913 and are designed to safely control a runoff at least 40 per cent in excess of that flood. The five hydraulic-fill retarding dams automatically store runoff in excess of the capacity of the improved channels through the cities.

The total rainfall on the 2525 sq. mi. drainage area above Dayton from Jan. 13-24, inclusive, averaged 9.03 in., as compared with 9.60 in. during the 1913 flood. However, the 1913 precipitation occurred in 3½ days. Total runoff at Dayton from the recent storm was 6.15 in., or 68.2 per cent of the rainfall. This produced a maximum stage of 14.6 ft. on the Dayton gage and a discharge of 53,500 second-feet, which was the greatest controlled flow passing through the channel since the works were completed. Controlled runoff through Dayton from a flood like that of 1913 would be 98,000 second-feet.

While the maximum storage capacity utilized at any one time during the recent storm was relatively small, it happened that four successive rises in the streams were produced during the storm period and had the precipitation occurred in one continuous storm (as in 1913), the maximum storage would have been much greater. The automatic feature of the retarding dams proved its efficacy during the January flood, as a very considerable amount of retarded inflow had passed through the conduits at each dam after each period of the storm before the following rains produced inflows in excess of the discharge capacities. Thus ample storage capacity was always available.

Chemical Exposition December 6-11, 1937

THE Sixteenth Exposition of Chemical Industries will be held in New York, December 6-11, 1937. Three floors of Grand Central Palace have been reserved and advance leasing to date indicates that the 1937 Exposition will be one of the largest in recent years. The role of chemical industries in the great reconstruction period now under way will be emphasized through the medium of dynamic displays designed to show the coordination of each phase of chemical manufacture with the many industries to which it is related.

The Sixteenth Exposition will be under the direction of the International Exposition Company, with Dr. Charles F. Roth, who has been similarly responsible for all of the previous Expositions, in charge.

MODERNIZED CHATTANOOGA PLANT TO CONSOLIDATE OPERATIONS

United States Pipe and Foundry Company's $1,000,000 Improvement Program Features Usicast Roof Construction

NEW buildings and reconstructed facilities completed under a $1,000,000 program at Chattanooga, Tenn., give the United States Pipe and Foundry Company a modern plant capable of annually producing 50,000 tons of cast iron pipe, fittings, machinery, special castings and cast iron roof plates. The company formerly operated two foundries in the Chattanooga area. One was equipped for manufacture of pipe by the pit cast process and was located on the banks of the Tennessee River. The other, where standard fittings were produced, was known as the Whiteside Street foundry. To consolidate these operations the company initiated the improvement program.

The new construction includes: the 2-story pattern shop and pattern storage building, 80 by 220 feet and containing modern woodworking tools; the machine shop building and large casting cleaning building, which are separated from each other by a self supporting brick wall. Through an electrically operated steel door, castings are transferred from the foundry to the machine shop by two traveling cranes of 20 and 30 tons capacity. The crane runway extends 120 feet beyond the machine shop over the shipping tracks. The machining portion of the structure is air conditioned.

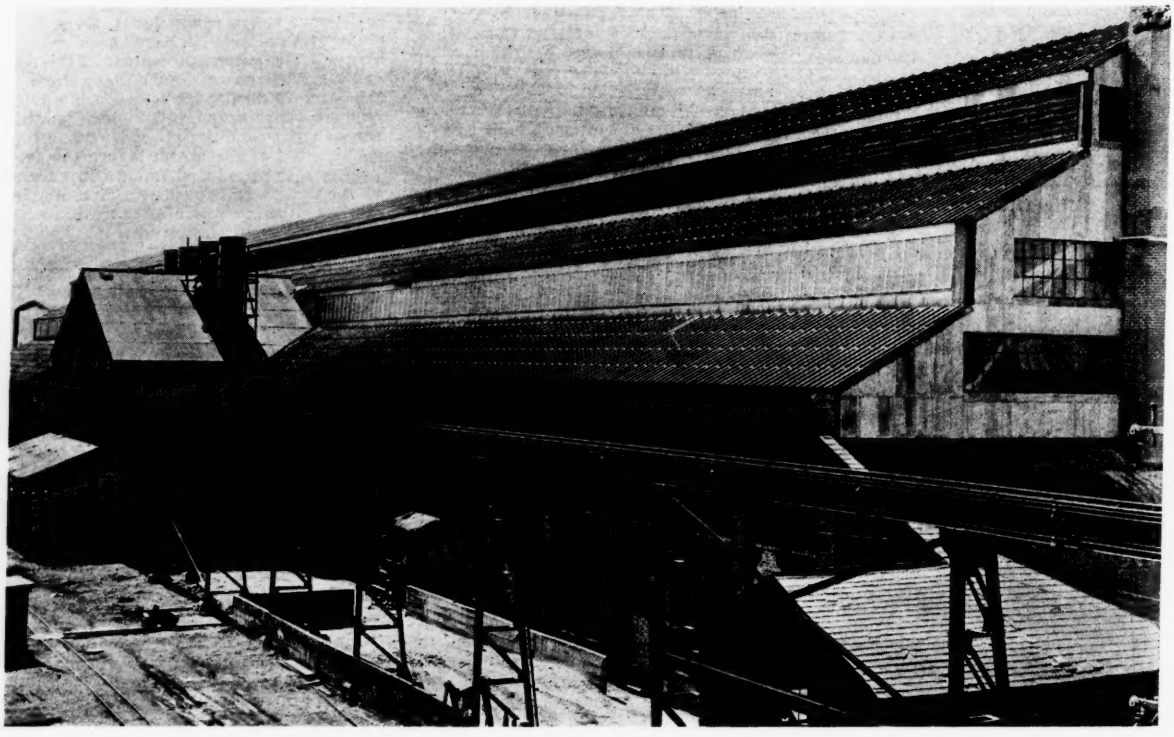
The cleaning, coating, testing and machining building, a 103 by 250-foot structure, is connected at the side of the pipe foundry end of the main building. Served by 5-ton 60-foot span crane and two 3-ton Mono-rail hoists, this building houses three large tumbling mills equipped with filters for removal of all dust.

Two 20 by 80-foot storage buildings, each contain four apartments. Adjoining these building is the railroad siding. A concrete highway runs along the opposite side of the structure. Other facilities include a carpenter shop, metal pattern storage building, commissary, smithshop, chemical laboratory, administrative office, power house and boiler room, first aid room and dispensary, bathhouse and locker room, and automatic telephone system.

Four distinct manufacturing areas are housed in the main foundry of 80 feet width which was extended 125 feet to its present length making a total length of 573 feet. These are areas for loam and dry sand work, occupying about 25 per cent of the building; miscellaneous jobbing floor; green sand molding floor for manufacture of standard fittings of from 3 to 24 inches; and sand cast pipe pit for producing pipe from 2 to 24 inches in diameter. Cranes of 76-foot span and of 20 and 30-ton capacities command the entire floor of the loam and dry sand space from the core ovens at one end to the cupolas at the other. One car oven provides core-drying facilities and the 14-foot by 22-foot down draft mold oven, capacity for large molds. This mold oven is stoker fired at both ends.

Appurtenances to make miscellaneous

(*Continued on page* 66)



Usicast Roof Feature of Modernization Work at Chattanooga Plant of the U. S. Pipe & Foundry Co.

AIR CONDITIONING TREND POINTS SOUTH

American Society of Heating and Ventilating Engineers Research Aids Development of Rapidly Growing Industry

BEHIND the scenes of the phenomenal air conditioning industry, research scientists are shaping the course of a business destined, many believe, to become one of the big key industries of the country. The South has one of the greatest stakes in the development of air conditioning. It is becoming one of the major markets for air conditioning equipment and will supply an increasing amount of the raw and fabricated materials which enter into the manufacture of air conditioning apparatus.

Nowhere is this function of supply more important than in the materials of building construction, much of which come from the South. And with its rapid growth of industrial projects involving the erection of new plants, the development of new industries and the expansion of existing ones, the new industrial South is expected to absorb millions of dollars of air conditioning within the next twelve months alone.

Night Air Cooling of Structures

One of the significant developments in air conditioning, which is beginning to attract attention, took hold in the South where so-called night air cooling and attic ventilation of homes and apartments is coming into widespread use.

This subject is one which is receiving the attention of a special committee of the American Society of Heating and Ventilating Engineers investigating various means of providing summer comfort, including mechanical refrigeration, deep well water cooling, scientific ventilation and other methods of either complete or partial air conditioning. Conspicuous success has followed the introduction of night air cooling of structures in several Southern cities, notably New Orleans which has attracted the interested attention of air conditioning manufacturers in other parts of the country.

Importance of Efficient Insulation Materials

With mechanical cooling of homes considered still beyond the reach of the average home owner, will better and more scientific methods of ventilating and moving comparatively large quantities of naturally cooled air through homes represent a step toward full air conditioning by educating the public to the possibilities of at least partial relief? That is a question which is being given increased attention, not only by the manufacturers who expect to benefit by wider use of conditioning, but by public utility companies which see in this trend load building possibilities of immense importance. Closely linked with this problem are the studies of construction materials and their adaptation to new conditions brought about by the ever widening use of air conditioning in homes and buildings.

Centering about the question of adequate and efficient insulation, the Committee on Research of the American Society of Heating and Ventilating Engineers is undertaking a broad review of the subject to bring present knowledge of the efficiency of insulators into line with their practical application in building construction. Paradoxical as it may seem, insulating materials are the victims of the very conditions they have helped to bring about. While serving admirably to keep out cold and heat and thus making possible the development of scientific air conditioning, they are subject to attack from within by the humidified air that people are coming to learn is so important for health and comfort during the winter months. The warm moistened air

(*Continued on page* 68)

MODERN STRUCTURAL DESIGN IN AIR CONDITIONING

IN the current move toward air conditioning and temperature control in the home, office and industrial buildings generally, it is particularly interesting to note the structural trend in the flour milling industry, where temperature and humidity control are so vitally important.

Alert designers, engineers and architects, desirous of making the most of exterior eye-appeal, even though that characteristic is not of prime importance in some types of industrial buildings, are turning to the latest developments of the glass technicians. Glass, through vast research, is just coming into its own as a structural product. No longer is it thought of merely as a necessary material to obtain vision.

The latest development is in the field of flour and feed mill and elevator construction. Horner and Wyatt, consulting engineers of Kansas City, Mo., recently designed the new plant at Grand Island, Neb., for the Nebraska Consolidated Mills Company, and the new milling structure at Denver, Colo., for the Omaha Flour Mills Co., of Omaha, using glass block in both to obtain the most efficient temperature and humidity control.

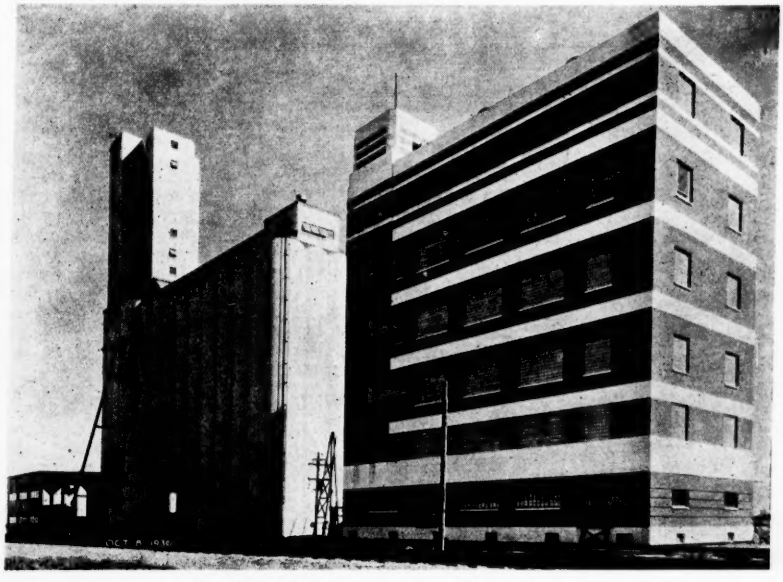
"Having determined to construct a building of modern exterior appearance in which to house the most modern type of equipment, it was decided to completely air condition and control the humidity of that portion of the plant which houses the milling operations," explains E. W. Homan of Horner & Wyatt.

"The problem of temperature and humidity control of the conditions under which the grain is converted into flour is very important, and is one which in the past has caused a great amount of trouble because of the lack of any control.

Insulux glass block was adopted as filling the requirements of ventilation control, low heat loss, natural lighting and because of its fitness for the type of architecture selected.

New Plant of the Omaha Flour Mills Co. at Denver, Col.

Cherry red face brick and white concrete are combined with glass block, the latter being used principally to obtain the ultimate in ventilation control, low heat loss and more natural lighting.



PRIVATE CONSTRUCTION NOW IN LEAD

SOUTHERN construction continues active. Awards for engineering and building operations, as reported in the DAILY CONSTRUCTION BULLETIN of the MANUFACTURERS RECORD, for February amounted to $58,990,000, bringing the total for the first two months of 1937 to $133,171,000. Work proposed during February was valued at $115,794,000 and the accumulated total for the year is $491,132,000, some of which has been let to contract in recent weeks.

While total contracts so far this year have been running behind those for the corresponding period of 1936, private construction has been maintained and now occupies the highest proportion of building operations than for some years, the value of government contracts having declined in recent months. Privately financed engineering and building operations during February were over $35,000,000 as against about $23,000,000 for public work.

Industrial awards of $26,917,000 headed the list of new construction contracts in February. They show a gain of 35 per cent over the industrial contracts of February 1936. The total for the first two months reached $55,029,000, with approximately $184,000,000 of industrial projects to be let up to the end of February.

General building awards in February not only doubled the $5,410,000 for February of last year, but showed an increase of 6 per cent over the $10,587,000 for January of 1937. Dwelling awards totaling $4,511,000 ranked first in the general building class with store construction valued at $3,500,000 running second and apartment and hotel work, $2,397,000, in third place. Bank and office improvements amounted to $601,000, church buildings $232,000 and association and fraternal construction trailed with a $60,000 figure.

Awards made in February for highway and bridge construction dipped 23 per cent from the $13,787,000 of January this year and amounted to a little over one-half of the $20,499,000 figure for February of last year. Drainage, dredging and irrigation, including levees, revetments and sea walls in February amounted to $1,238,000 as compared with the $97,000 in January.

Sewer and water works construction awards in February amounted to $1,839,000. Dropping from the $7,634,000 awards made in January of this year and $696,000 lower than the $2,535,000 total for this type of work during February, 1936.

Expansion occurred in a wide variety of industries scattered over the entire South. The largest plant announced during the month was in the paper manufacturing field where during the past several months expenditure of more than $60,000,000 has been under way for construction of plants in Arkansas, Florida, Georgia, North Carolina, South Carolina, Texas and Virginia. The newest addition to this parade of paper plants was the $3,275,000 pulp and paper mill proposed for Jacksonville, Fla., by the National Container Corp. Plans for the newsprint mill in East Texas were still being formulated. Rumors persisted that the Champion Paper and Fibre Co., now completing a plant on the Houston ship channel, would erect a finishing department.

Textile plant expansions included expenditure of between $500,000 and $1,000,000 for improvements and installation of new machinery at the Anderson Cotton Mills, Anderson, S. C. The Bibb Manufacturing Co., of Macon, Ga., proposed additions to cost well over $200,000. Contract was awarded for a $150,000 plant for the Sellars Hosiery Mills, Burlington, N. C. As the month drew to a close the Talco Asphalt & Refining Co., Dallas, proposed a $600,000 refinery at Mt. Pleasant, Texas. Additions to industry in the Houston area were especially pronounced with the Houston Milling Co. initiating a $220,000 program; Dixon Packing Co. proposing a $150,000 plant; Gulf Portland Cement Co. awarding contracts for its new plant and Lone Star Cement Co. proposing additional storage bin capacity.

Southern Construction Activity, Classified

	February, 1937		January-February, 1937	
	Contracts Awarded	Contracts to be Awarded	Contracts Awarded	Contracts to be Awarded
General Building				
Apartments and Hotels	$ 2,397,000	$ 3,735,000	$ 4,981,000	$ 11,138,000
Association and Fraternal	60,000	152,000	348,000	402,000
Bank and Office	601,000	595,000	1,826,000	1,414,000
Churches	232,000	877,000	359,000	2,062,000
Dwellings	4,511,000	4,805,000	9,195,000	8,112,000
Stores	3,500,000	3,865,000	5,179,000	5,948,000
	$11,301,000	$ 14,029,000	$ 21,888,000	$ 29,076,000
Public Buildings				
City, County, Government and State	2,957,000	18,488,000	12,706,000	48,898,000
Schools	3,672,000	7,878,000	7,665,000	18,010,000
	$ 6,629,000	$ 26,366,000	$ 20,371,000	$ 66,908,000
Roads, Streets and Paving	$10,576,000	$ 25,747,000	$ 24,363,000	$152,992,000
Industrial and Engineering				
Drainage, Dredging and Irrigation	1,238,000	1,587,000	1,335,000	37,289,000
Filling Stations, Garages, etc.	490,000	490,000	712,000	1,046,000
Industrial Plants	26,917,000	43,089,000	55,029,000	184,150,000
Sewers and Waterworks	1,839,000	4,486,000	9,473,000	19,671,000
	$30,484,000	$ 49,652,000	$ 66,549,000	$242,156,000
Total	$58,990,000	$115,794,000	$133,171,000	$491,132,000

Southern Construction, by States

	February, 1937		January-February, 1937	
	Contracts Awarded	Contracts to be Awarded	Contracts Awarded	Contracts to be Awarded
Alabama	$ 1,398,000	$ 1,686,000	$ 5,533,000	$ 36,511,000
Arkansas	406,000	831,000	1,605,000	6,455,000
District of Columbia	2,134,000	7,945,000	10,571,000	20,531,000
Florida	4,469,000	9,441,000	14,986,000	21,824,000
Georgia	1,842,000	4,679,000	3,735,000	22,026,000
Kentucky	7,126,000	2,792,000	9,141,000	9,213,000
Louisiana	1,100,000	9,402,000	2,942,000	22,748,000
Maryland	5,078,000	12,509,000	18,854,000	23,935,000
Mississippi	1,804,000	3,660,000	3,463,000	26,232,000
Missouri	7,817,000	12,099,000	9,544,000	38,626,000
North Carolina	3,981,000	3,991,000	10,018,000	46,010,000
Oklahoma	1,677,000	3,867,000	3,177,000	17,932,000
South Carolina	1,194,000	2,539,000	2,994,000	8,254,000
Tennessee	6,161,000	3,117,000	8,824,000	32,676,000
Texas	8,896,000	22,904,000	19,819,000	96,643,000
Virginia	2,858,000	10,799,000	4,826,000	28,432,000
West Virginia	1,049,000	3,533,000	3,139,000	33,084,000
Total	$58,990,000	$115,794,000	$133,171,000	$491,132,000

Loading oyster shell into a barge alongside the W. D. Haden Company's Dredge No. 6 on Redfish Reef in Galveston Bay, only a few miles from the Houston Ship Channel.

CALCIUM CARBONATE

in Your Own Backyard!

THE shell reefs in Texas coastal waters furnish Texas industry an unusually pure source of calcium carbonate, right in its own backyard. These reefs are convenient to industrial centers all along the coast. Already, they support a thriving and varied industry: in Texas lime and cement are made from oyster shell, and shell contributes a necessary raw material to the heavy chemical industry; it is fed to hens and livestock; it is used to surface roads and as a concrete aggregate.

The supply is almost inexhaustible; reefs now being dredged are expected to last out the century, and undeveloped reefs afford a reserve to draw on for the next hundred years and the next.

The value of this natural resource to Texas industry is not only enhanced but in part created by other resources, equally abundant, equally useful to the industrialist. Natural gas, for example, furnishes the heat for the conversion of shell to lime and cement. It combines with our other resources—our oil, our sulphur, salt, timber, ores, clays and agricultural products (cotton, cotton linters, cattle, wool and mohair)—to offer expanding industry, new industry, an opportunity that has rarely been equalled in industrial history.

The coast country of Texas is a growing influence in your industry. It offers your own company undeniable advantages of natural resources, rail and water transportation, accessible markets. It will pay you to investigate it.

To assist you, we will gladly send you a survey of the Texas Coast Country individualized to your company's needs. These surveys are specially prepared on request: each is confidential, factual, comprehensive, reliable. We have prepared such surveys for many leading industries; send for one for yours. Address Houston Pipe Line Company, Petroleum Building, Houston, Texas.

HOUSTON PIPE LINE CO.

Subsidiary of Houston Oil Company of Texas

GEO. A. HILL, JR., President

Wholesalers of Natural GAS

Representative Projects in the South During February

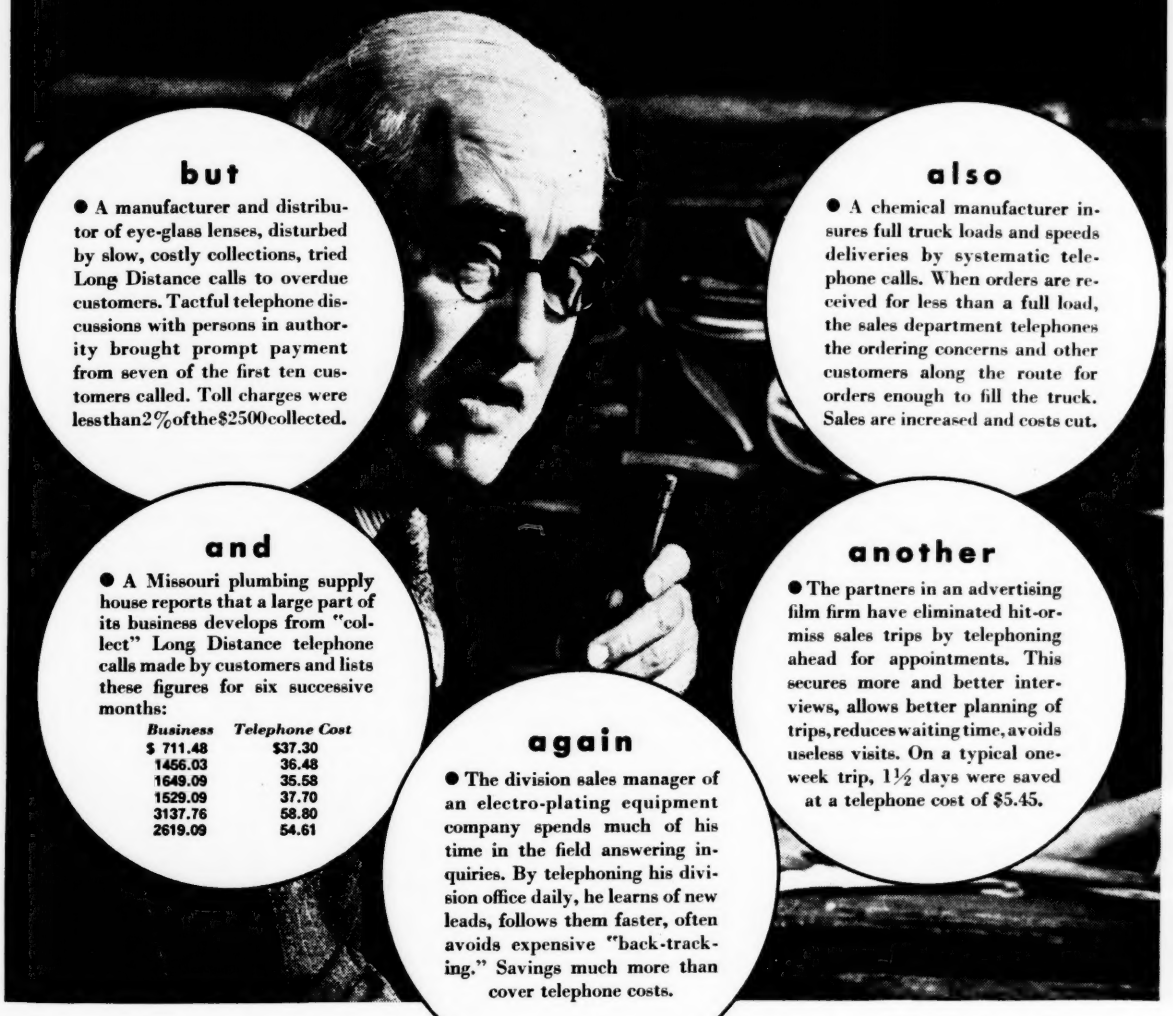
Proposed Construction

Ark., Little Rock—Continental Baking Co.
Plant building ..... $ 250,000
D. C., Washington—Cafritz Construction Co.
Apartment; Harvey Warwick, Archt. 600,000
D. C., Washington—Bernard F. Owens, Baltimore, Md., Archt.
Club building 250,000
D. C., Washington—G. C. Murphy Co.
Store Addition; H. F. Crosby, Designer 135,000
D. C., Washington—Vermont Co.
Apartment; Robert O. Scholz, Archt. 250,000
D. C., Washington—National Park Service
Thomas Jefferson Memorial; John Russell Pope, N. Y., Archt. 3,000,000
Florida—Paramount Pictures, Inc., N. Y.
Theatre Air Conditioning 175,000
Fla., Coral Gables — B. & G. Realty Corp., Passaic and Montclair, N. J
Dwellings; Paist & Steward, Archts., Miami..... 150,000
Fla., Jacksonville—National Container Corp.
Pulp and Paper Mill 3,275,000
Fla., Key West—Overseas Road & Toll Bridge District
Roads and Bridges 350,000
Fla., Miami—Jack Dempsey and Harry Hartz
Speedway 250,000
Fla., Miami Beach—Surf Hotel Corp.
Hotel; Henry Hohauser, Archt. 150,000
Fla., Tampa—City
Water Main Extension 225,000
Fla., West Palm Beach—Palm Beach County
Lake Worth Bridge; J. M. Boyd, Engr. 750,000
Ga., Atlanta—Christ the King Congregation
Church; Henry Dagit & Sons, Philadelphia, Pa., Archt. 150,000
Ga., Atlanta—Massell Realty Co.
Store and Office Buildings; E. C. Seiz, Archt. 250,000
Ga., Atlanta—State
Library and Office Building 250,000
Ga., Macon—Bibb Manufacturing Co.
Addition; Q. R. Nolan, Engineer (Also buildings at Columbus) and Porterdale Mill 200,000
Ky., Elsmere—City
Water System, Tank; R. C. Stout, Engr. 100,000
Ky., Lexington—Board of Education
Junior High School; Frankel & Curtis & John T. Gillig, Archts. 267,000
Ky., Maysville—State Highway Commission
Viaduct 300,000
La., Houma—Terrebonne Parish
Court House and Jail, Wogan & Bernard, New Orleans, Archts. 130,000
La., Shreveport—Southwestern Gas & Electric Co.
Power Lines 250,000
La., Thibodaux—Lafourche Sugars Corp.
Sugar Plant Improvements 265,000
Md., Towson—Baltimore County
High School; Smith & May, Archts., Baltimore..... 138,000
Mo., Jefferson City—Percy Tyrrell, Hotel President, Kansas City
Hotel; Alonzo H. Gentry and Voskamp & Bevell, Kansas City, Archts. 750,000
Mo., Kansas City—George W. Deggan
Brewery 500,000
Mo., St. Louis—Board of Education
Negro College 500,000
Mo., St. Louis—May Company
Air Conditioning Famous-Barr Department Store; Will Levy, Consult, Archt. 750,000
Mo., Springfield—Springfield Gas & Electric
Improvements 600,000
N. C., Brevard—Brevard College
Building Program 255,000
Okla., Tulsa—B'Nai Emunah Orthodox Jewish Congregation
Building; Pereira and Pereira, Chicago, Archts. 125,000
S. C., Anderson—J. P. Abney and Associates
Textile Mill Improvements 1,000,000
Tenn., Chattanooga—Combustion Engineering Co.
Boiler Plant Improvements 175,000
Texas—Southland Paper Mills, Inc.
Newsprint Mill 5,000,000
Tex., Dallas—Dallas Methodist Hospital
Addition 150,000
Tex., Fort Worth—City of Fort Worth and Tarrant County
Hospital; W. G. Clarkson & Co., Archts. 500,000
Tex., Fort Worth—Montgomery Ward & Co.
Store Addition; R. R. Rowe, Chicago, Archt. 600,000
Tex., Houston—Dixon Packing Co.
Packing Plant; William H. Knehans, St. Louis, Mo., Engineer-Archt. 150,000
Tex., Houston—Oscar F. Holcombe & Associates
Dwellings; R. C. Schneider, Archt. 1,000,000
Tex., Houston—Houston Milling Co.
Expansion Program 220,000
Tex., Houston—River Oaks Corp.
Community Center; Oliver C. Winston and Nunn & McGinty, Archts. 200,000
Tex., Mt. Pleasant—Talco Asphalt and Refining Co.
Refinery 600,000
Tex., Rockwall—Rockwall County Light & Power Company
Generating Plant, Power lines 275,000
Tex., Waco—Taylor University
Bible Building 100,000
Va., Petersburg—Virginia State College for Negroes
Buildings; J. Binford Walford, Richmond, Archt..... 570,000
Va., Richmond—Chesapeake & Potomac Telephone Co.
Program for 1937 4,750,000
Va., Virginia Electric and Power Co.
Improvements, 1937 2,874,000
W. Va., Wheeling—Home of the Good Shepherd
Laundry 100,000

Contracts Awarded

Ark., Monticello—Arkansas Agricultural and Mechanical College
Dormitories, Water-tower; Line, Barger & Fraser, Springdale, (low bidder) 105,370
D. C., Washington—Architect of Capitol
Power Plant Additions; Raisler Engineering Corp., N. Y., Contr. 118,000
D. C., Washington—District Commissioners
High School Addition; Lacchi Construction Co., Baltimore, Contr. 162,000
D. C., Washington—Kay Construction Co.
Apartment House 200,000
D. C., Washington—Treasury Department
Stack Columns, Etc., Archives Bldg.; Breeze Corp., Newark, N. J. (low bidder) 118,000
Fla., Key West — Overseas Road and Toll-Bridge District
Bridge and Surfacing Projects; Clarke Brothers, Clinton, Iowa, S. J. Groves & Sons Co., Minneapolis, Minn., Thomas F. Kenney, Orlando, Contrs. 1,479,000
Fla., Miami Beach—Charles H. Bohn
Dwelling; Fred Howland, Inc., Contr. 105,000
Fla., Tampa—General Connecticut Life Insurance Co.
Store Building; Capital Construction Co., Atlanta, Ga., Contr. 100,000
Ga., Atlanta—Edgewood Shoe Factories
Shoe Plant; A. K. Adams & Co., Contrs. 300,000
Ga., Moultrie—Colquitt County Rural Electric Co.
Electric Lines; W. F. Scott Construction Co., Thomasville, (low bidder) 217,000
Md., Baltimore—Board of Awards
Hospital Alterations; Davis Construction Co., Contr..... 128,000
Md., Baltimore—Board of Awards
Paving Repairs; P. Flanigan & Sons, Inc., National Paving & Contracting Co., Contrs. 251,000
Md., Poole's Island—U. S. Engineer
Dredging; Arundel Corp., Baltimore (Contr.) 238,000
Md., Towson—Baltimore County
Water Mains (Reisterstown); Marocco Construction Co., Baltimore, Contr. 138,000
Miss., Biloxi—Veterans' Administration
Mess Hall; Ray M. Lee Co., Atlanta, Ga. 128,000
Miss., Canton—Municipal Separate School District
High School Addition; Negro School; J. R. Flint Construction Co., Jackson 104,000
Miss., Columbia—Municipal Separate School District
High School; Dye & Mullings, Contr. 99,000
Missouri—State Highway Commission
Highway Projects; St. Louis; M. E. Gillioz, Inc., Monett 627,000
Mo., Jefferson City—State Building Commission
Elevators; State Hospitals, 1, 2, 3, and 4; Otis Elevator Co., Contr. 153,000
Mo., North Kansas City—Kroger Grocery & Baking Co.
Warehouse; Hiram Elliott Construction Co., Contr. 200,000
Mo., St. Louis—Board of Public Service
Community Center; I. E. Millstone Construction Co., Contr. 186,000
Mo., St. Louis—Jefferson Hotel
Alterations; St. Louis Bank Building & Equipment Co., Contr. 100,000
Mo., Springfield—Treasury Dept.
Post Office and Court House; Henke Construction Co., Chicago, Contr. 462,000
N. C., Burlington—Sellars Hosiery Mill
Hosiery Mill; Bryan & Bailiff, Contrs. 150,000
N. C., Raleigh—Treasury Dept.
Post Office and Court House extensions; J. M. Gregory, Contr. 289,300
Okla., Allen—Sunray Oil Co., Tulsa
Cracking Unit; Arthur G. McKee & Co., Contr., Cleveland 140,000
Okla., Tulsa—Board of Education
High School; Charles M. Dunning Co., Contr. 502,000
Okla., Tulsa—Kennedy Building
Air Conditioning; Natkin & Co., Kansas City, Contrs., Westinghouse Electric and Manufacturing Co., steam-jet system; Lilie-Hoffman Cooling Towers, Inc., St. Louis, cooling tower 250,000
Okla., Tulsa—Waite Phillips
Air Conditioning; Philtower and Philcade Buildings; W. R. Grimshaw, Contr., Frick Co., Waynesboro, Pa., compressors, etc. 600,000
S. C., Sumter—City
Water and Sewer Works; Lee Construction Co., Charlotte, (low bidder) 97,000
Tenn., Erwin—Clinchfield Railroad
Cars; American Car & Foundry Co., Huntington, W. Va., Greenville Car Co., Greenville, Pa., Contrs. 2,500,000
Tenn., Pulaski—Giles County
High School; Nile E. Yarwood, Nashville, Contr. 98,000
Tex., Austin—Bureau of Reclamation
Gates for dam; Bartlett-Hayward Division of Koppers Co., Baltimore; Hardie-Tynes Manufacturing Co., Birmingham; S. Morgan Smith Co., York, Pa., Contrs. 1,786,000
Tex., Dallas—Baker Hotel
Air Conditioning; Kribs & Landauer and Wallace Plumbing Co. 200,000
Tex., Fort Worth—Treasury Dept.
Narcotic Farms Buildings; R. F. Ball Construction Co. (low bidder) 496,000
Tex., Port Arthur—U. S. Engineer
Revetment; J. De Puy, San Antonio, Contr. 429,000
Va., Danville—City
Transmission Line; Kelso Wagner Co., Dayton, Ohio, Contr. 125,000
Va., Harrisonburg—Shenandoah Valley Electric Cooperative
Electric Lines; Chandeler Electric Co., Contr. 112,000
W. Va., Wheeling—Treasury Dept.
Post Office and Court House; A. Farnell Blair, Lake Charles, La., Contr. 447,000

"LONG DISTANCE may be all right for BIG businesses – but not for ME"



but

● A manufacturer and distributor of eye-glass lenses, disturbed by slow, costly collections, tried Long Distance calls to overdue customers. Tactful telephone discussions with persons in authority brought prompt payment from seven of the first ten customers called. Toll charges were less than 2% of the $2500 collected.

also

● A chemical manufacturer insures full truck loads and speeds deliveries by systematic telephone calls. When orders are received for less than a full load, the sales department telephones the ordering concerns and other customers along the route for orders enough to fill the truck. Sales are increased and costs cut.

and

● A Missouri plumbing supply house reports that a large part of its business develops from "collect" Long Distance telephone calls made by customers and lists these figures for six successive months:

Business	*Telephone Cost*
$ 711.48	$37.30
1456.03	36.48
1649.09	35.58
1529.09	37.70
3137.76	58.80
2619.09	54.61

another

● The partners in an advertising film firm have eliminated hit-or-miss sales trips by telephoning ahead for appointments. This secures more and better interviews, allows better planning of trips, reduces waiting time, avoids useless visits. On a typical one-week trip, 1½ days were saved at a telephone cost of $5.45.

again

● The division sales manager of an electro-plating equipment company spends much of his time in the field answering inquiries. By telephoning his division office daily, he learns of new leads, follows them faster, often avoids expensive "back-tracking." Savings much more than cover telephone costs.

Maybe we've talked too much about how large companies use Long Distance telephone service. Some people may have the idea that small businesses don't need it or can't employ it economically. . . . *Actually*, businesses of all sizes have pretty much the same basic problems. And Long Distance is so fast, so *convenient* that it saves just as many days and dollars in proportion for small businesses as it does for big businesses. . . . A few actual instances are given above. You can probably apply Long Distance to your own business just as *profitably*.

AMERICAN TELEPHONE & TELEGRAPH CO. AND ASSOCIATED COMPANIES — BELL SYSTEM

IRON, STEEL AND METAL MARKET

WITH anticipated further wage increases in the steel industry, added cost of social security payments and continued heavy demand, iron and steel prices are expected to be higher in the second quarter. A rise of $1 a ton in pig iron was reported last week and scrap at $21.25 a ton, Pittsburgh, is a new high since 1925. Finished steel prices are expected to advance $3 to $5 a ton. Prices of other metals have gone up; lead reaching 6.50 cents a pound and copper around 15 cents a pound is the highest since 1930.

Operating Rate Gains

With orders in substantial volume, the steel industry is operating at about 84 per cent of capacity, compared with about 82 per cent the first part of February, 77.9 per cent for January and 52.9 per cent in January 1936. Ingot production in the United States in January last was the highest for that month in history, being 4,736,000 tons, or 5.2 per cent over the figure for 1929. More workers are employed than ever before. With automotive production of 550,000 units expected for March, and steady buying generally, deliveries of material is the major concern. Orders for freight cars on February 1 topped figures for any corresponding date since 1926. The Norfolk & Western Railway increased from 1,000 to 2,000 its recent orders for hopper coal cars each with the Virginia Bridge Co. and Bethlehem Steel Company. Breaking the deadlock between the Department of Labor and private steel companies brought about by the stipulation of the Walsh-Healy act requiring specified hours and working conditions, United States Steel Corporation subsidiaries entered bids over $2,000,000 in Government contracts, the corporation announced last week. As this goes to press it was not known whether these bids were accepted or not.

Although not so high as the peak of orders placed in December, machine tool sales continued at record levels during January, the National Association of Machine Tool Builders reports. Index of all orders for January was 200 compared with 257.7 recorded for December. Domestic orders declined more than foreign.

Recovery from the recent floods has stimulated sales in the affected areas, overcoming the handicap of bad weather on the farm and rural building supply trade. Plumbing supply outlets are preparing for a gain of about 50 per cent. Including installation costs, this would increase the total sales volume for 1937 to $1,950,000,000, acording to estimates.

Expansion Programs

Large scale programs have necessitated the mapping of new coal mines, ore mines, and limestone quarries. New equipment orders in the industry will top $290,000,000, the American Iron and Steel Institute estimates. Last year the Institute's estimate was $16,000,000 below the figure at year end. At least three new blast furnaces are scheduled to be completed in 1937. New coke ovens with an aggregate annual capacity of more than 1,000,000 tons of coke are being installed, these exclusive of replacements. Construction of five continuous strip mills for the industry is now under way. This will increase the number of mills of this type to 27, with a total annual capacity of more than 12,000,000 tons of sheets, strips and plates. More than $53,000,000 is being expended in the South for sheet and tin plate mills and other improvements in the iron and steel industry.

Steady Production in South

The outlook is bright in the Southern steel district with production steady in the Birmingham area at around 78 per cent of capacity. January production of pig iron was higher than any figure for the same date since 1930, the total being over 220,000 tons. Eighteen open hearth and 15 blast furnaces are in operation. Of the 50,000 industrial employees in the Birmingham district, it was estimated at the end of February that 27,000 were employed in the steel and iron plants, a larger number than were employed in 1929.

Copper and Lead Prices Advance

All copper markets are feeling the impact of armament programs, London being the first to feel this shock fully.

Copper and lead prices in London rose to stay in a range above 15 cents a pound, with lead also rising, to hover around 6.78 cents. Domestic price of lead stayed around 6.50 cents a pound. Domestic price of copper went to 15 cents a pound, highest since 1930. Production of copper throughout the world is expected to reach a new high level, analysts report. Standard Statistics Company estimate that monthly production of copper may reach 225,000 tons. On an annual basis this would be 2,700,000 tons, or 50 per cent above 1936 output, and 27 per cent greater than 1929, the previous peak year.

The Bureau of Mines reported an increase of nearly 37,000 tons of lead and zinc mined during 1936 over the figure for 1935. Greatest increases in zinc were registered in Kansas, Idaho, Missouri, and New Jersey. Decline of company mines in Oklahoma and Montana were held partly responsible for the small supply available. Stocks were only 34,143 tons, the lowest since 1927. Prices on slab zinc averaged 6.40 cents a pound for the month. Demand for zinc went up sharply early in February, with a rise of 15 points held likely.

World zinc output for 1936 showed a gain of over 200,000 tons, of which the United States produced 90,000 tons.

Sheet Steel Made at Rate of Half a Mile a Minute

Faster than the pace of any other industry is that of sheet steel leaving the rolling mill. At a rate of over 2,000 feet per minute sheet steel is now rolled out faster even than newsprint, former record holder for production rate at speeds hovering around 1,000 feet per minute.

Due to the necessity of a constantly increasing speed as the sheets are rolled thinner and thinner, rolling mills in Pittsburgh step their revolutions up and up, until, when a sheet leaves the line, it is moving, sizes of 100 inch wide and 1,000 feet in length, at this unprecedented speed, roughly 2½ miles per hour, or as fast as troops march in the field.

PROMPT DELIVERIES FROM STOCK (Standard Sizes)

ORIOLE GALVANIZED STEEL SHEETS

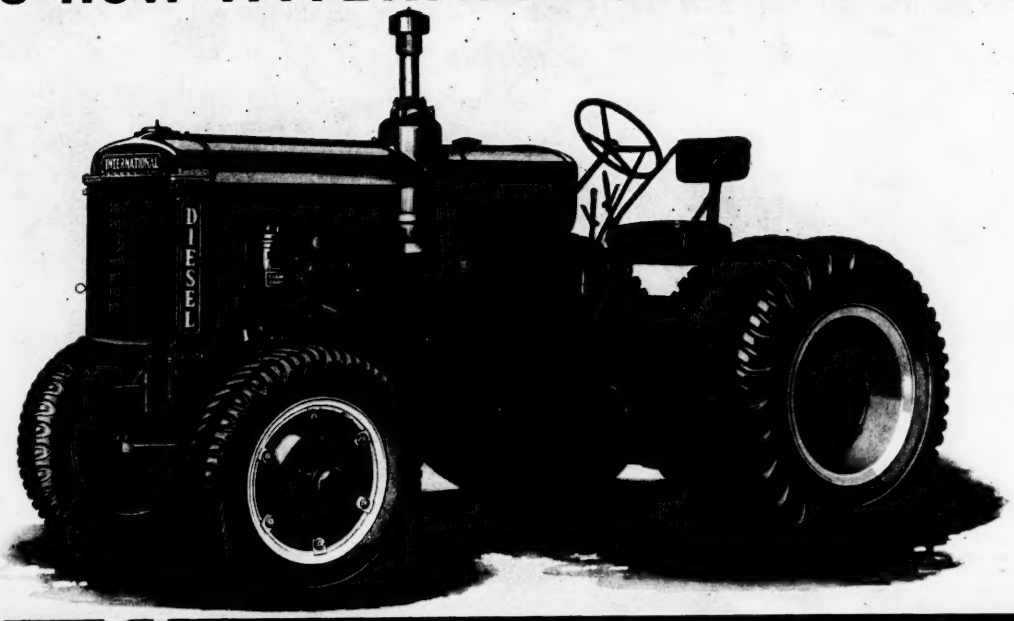
Flat-Corrugated-Roofing

THE EASTERN ROLLING MILL CO.

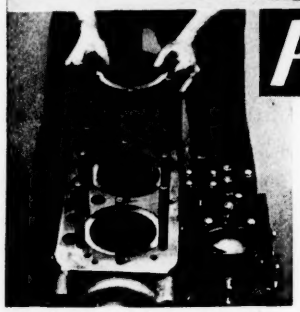
BALTIMORE, MARYLAND

District Office, Petroleum Bldg., Houston, Tex.

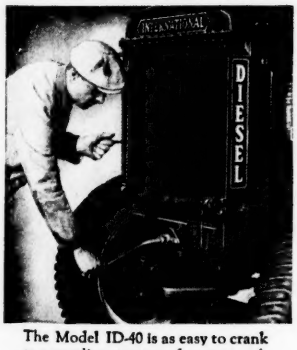
America's FIRST Diesel-Powered Industrial Wheel Tractor . . . the new INTERNATIONAL ID-40



Power, Quality and Economy



Replaceable cylinders—an example of the big money-saving features built into all International Tractors.



The Model ID-40 is as easy to crank as a gasoline tractor of corresponding size.

● International Harvester, world's largest tractor builder, scores another *first* with the new Model ID-40. This organization has adapted the Diesel principle to wheel-type industrial tractor operation, the first time this has been done in America. This new tractor uses the same International Diesel engine that has proved so successful in the International TD-40 TracTracTor and the Model PD-40 Power Unit. The Model ID-40 Tractor has power and stamina to handle a variety of heavy-duty work calling for a wheel tractor. Investigate this new addition to the line of International Industrial Power, which includes wheel and crawler tractors, and power units from 12 to more than 100 h. p.

INTERNATIONAL Model I-40

This tractor is also new in the International Industrial Power line. It is similar in design and construction to the Model ID-40 but is powered with the efficient 6-cylinder gasoline engine used in the Model T-40 TracTracTor. Both of these tractors have the well-known features of International manufacture which mean so much to the user in low operating costs and maintenance economy.

INTERNATIONAL HARVESTER COMPANY
(INCORPORATED)
606 So. Michigan Ave. Chicago, Illinois

INTERNATIONAL HARVESTER

LUMBER NEWS OF THE MONTH

LUMBER CONSUMPTION AND ORDERS GAIN---PRICES ADVANCE

Available Reserve Producing Capacity of Lumber Manufacturing Industry Ample to Meet all Present and Prospective Demands. Total national lumber stocks at mills on January 1, 7,439,-000,000 feet.

IN its latest quarterly report to the Timber Conservation Board, the Lumber Survey Committee of that body stresses the fact that the abrupt and substantial transition from a "buyers market" to a "seller's market" has inspired loose and "unwarranted warnings in some markets" of a possible lumber shortage. To offset these warnings the committee says:

> "The lumber industry should discourage 'lumber famine' propaganda and resist artificial pricing of its products. The available reserve producing capacity of the lumber manufacturing industry is ample to meet all present and prospective demands."

The report for the first quarter of 1937 revises upward the estimated figures of lumber consumption for 1936, which are now 23,042,000,000 feet, an increase of 3,-736,000,000 feet over 1935. Total national lumber stocks at the mills on January 1, 1937, were 7,439,000,000 feet, 2 per cent in excess of the supply on the same date, 1936. The end of the Pacific Coast maritime strike in early February released promptly a heavy volume of deferred shipments. With the restoration of flooded areas there will be some revival of lumber production, replacement of damaged stocks, and a substantial demand for rehabilitation materials.

Regional stocks, considered in the light of heavy unfilled orders are inadequate. With the resumption of normal operations, however, this temporary shortage will soon be taken care of.

With 1926 as par, the index of average wholesale lumber prices at the mills, as reported to the Bureau of Labor Statistics, was 89.6 in December, 1936, highest since May, 1930. In November, 1936, the index was 86.6. In December, 1935 it was 81.5, and 88.0 in December, 1933. The average for 1936 was 84.5, compared to 85.8 in 1930. The December index is 6 per cent above the average for the entire year.

Although still lower than the index for cement or structural steel the lumber price index in December advanced for the sixth consecutive month to 89.6, or 1.2 per cent above brick. The Southern Pine price, average of all grades and dimensions, was $25.82 in December, 1936, 6 cents lower than in June, and $4.19 above that of December, 1935. West Coast lumber price average for December was $20.75, or $1.56 over October's average, an advance accounted for by the strikes, and subsequent stoppage of shipments.

Price trends point upward for the first quarter in redwood, Northern pine, and cypress. Southern hardwood prices advanced well in the last three months of 1936. Following is a table of estimated lumber consumption, in half-year periods, for the last three years, figures having been revised on the basis of recent additional data:

Lumber Consumption

	First six months board feet	Second six months board feet
1934	7,814,000,000	7,653,000,000
1935	9,041,000,000	10,265,000,000
1936	11,210,000,000	11,832,000,000

Estimated Softwood Lumber Consumption, 1936, By Producing Regions

	Board Feet
Southern Pine	6,699,000,000
Douglas Fir	6,359,000,000
Western Pine	4,066,000,000
Redwood	462,000,000
Southern Cypress	235,000,000
Northern (Minn.)	149,000,000
Northern (Wis. and Mich.)	267,000,000
Northeastern	685,000,000
Not segregated	375,000,000
Total softwood	19,297,000,000

Estimated Hardwood Lumber Consumption, 1936, By Producing Regions

	Board Feet
Southern	2,036,000,000
Appalachian	608,000,000
Northern	515,000,000
North Central	182,000,000
North Central	282,000,000
Not Segregated	122,000,000
Total Hardwood	3,745,000,000
Grand Total	23,042,000,000

Unfilled Orders in Percentage of Stocks

	Jan. 1, 1934 Per Cent	Jan. 1, 1936 Per Cent	Jan. 1, 1937 Per Cent
Southern Pine	19	23	33
West Coast	24	44	68
Western Pine	9	15	25
Calif. Redwood	13	13	21

Heaviest in seven years were unfilled orders at the year end. On the West Coast orders unfilled due to the maritime strike totalled 900,000,000 feet. In the last quarter total new orders reported were 20 per cent above production. Shipments for the year as a whole were 1 per cent below output, orders 4 per cent above production.

Promising is the hardwood outlook, in spite of floods. Furniture activity during the first quarter may show a 10 to 20 per cent increase over 1936. Continued heavy demand for flooring and hardwood finish is indicated, with gains in residential building.

Residential building in the fourth quarter of 1936 was 8½ per cent below the third quarter figure, which latter was highest since 1930. Residential floor space for 1936 was only 3 per cent below 1930. Building gains for the year were heavy in the Southeast and Texas.

Total construction expenditures, including public works, in 37 States were $2,675,296,000 in 1936, a gain of 45 per cent over 1935. Fifty per cent of this amount was for privately financed construction.

Railroad spending is expected to be a greater factor in general business activity than at any time since 1930. Substantial lumber orders for car building and maintenance work have been reported from various centers.

More Southern Pine Sold

Weekly shipments of Southern pine during February have been from 28 to 65 per cent above corresponding weeks of February 1935, according to the Southern Pine Association. Orders have shown a weekly increase during February from 8 to 45 per cent as compared with February 1935. Production has been from 15 to 22 per cent greater than in February 1935. Southern pine orders for the week ending February 20 amounted to 30,327,000 feet; shipments 38,558,000 feet and production 33,596,000 feet.

Virginia Building Material Dealers

CLOSING their eleventh annual meeting the delegates of the Virginia Lumber and Building Supply Dealers' Association, convened in Richmond, voted to change the name of the Association to the Virginia Building Material Association.

The "serious shortage" of skilled labor in the building trades was discussed at the convention. The Association opposed an increased freight rate on building materials, but favored grade-marking of lumber and other materials, and legislation to regulate itinerant merchant truckers.

Fighting Destruction by Termites

Substitution of other materials for wood in understructures of buildings will not necessarily solve the termite problem, according to E. L. Fellman, manager of the Terminix Division, E. L. Bruce Company, Memphis, Tenn., one of the world's largest termite control systems. In the insulation of 30,000 buildings against termites, the company's 53 licensees have found many instances where termites have successfully circumvented concrete, brick and masonry foundations to reach cellulose in the upper part of the buildings. Wood, intelligently used, says Mr. Fellman, is still the most economical and best all-around material for use in foundations, as well as in other parts of the building.

AmCreCo timbers should be used where construction demands permanence, low cost and reliability. A proved method of pressure creosoting assures freedom from deterioration. The selection of high grade timber, for treatment by AmCreCo means each product has the strength needed to meet the most exacting requirements. Your creosoted timber problems interest us. Possibly we can help you.

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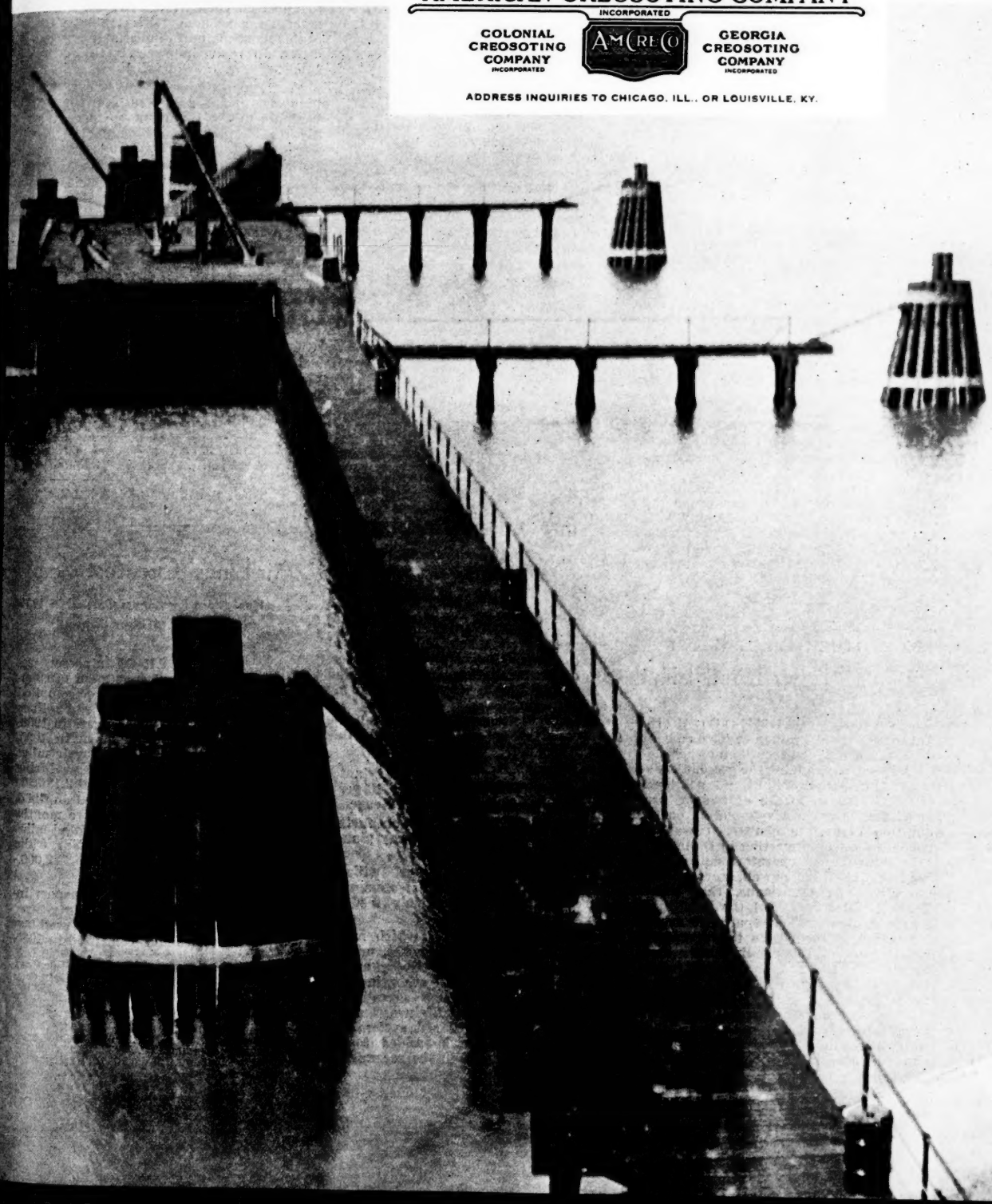
ADDRESS INQUIRIES TO CHICAGO, ILL., OR LOUISVILLE, KY.



GOOD ROADS AND MOTOR TRANSPORT

Resumption of Automobile Buying

AFTER a period of five years, during which total automobile registrations virtually remained at a stand-still, an increase of 2,000,000 registrations is reported for 1936, with a similar up-swing expected for 1937.

At current tax rates each increase of a million cars will mean an additional annual tax revenue of about $49,000,000, of which $35,000,000 will go to the States in gasoline taxes and registration fees. In 1936 the States collected a total of $1,035,000,000. Of this sum $685,000,000 was in gasoline taxes, and about $350,000,000 in registration fees.

The American Petroleum Industries Committee reports that the number of motor vehicles registered increased from slightly over 9,000,000 in 1920 to 26,545,000 in 1930, or 185 per cent. The Automobile Manufacturers Association reported a registration of over 28,270,000 motor vehicles in 1936.

Southern states share in registrations for the 1920-1930 period jumped from about 23 per cent of the national total in 1920 to 25.8 per cent in 1930. Because of the sharp national up-swing during this decade, it is not at once apparent that the increase for the South alone was better than 211 per cent. The actual figures for the South show a jump of from 2,200,000 registering in 1920 to 6,848,000 in 1930. Motor vehicle registrations in the South were in excess of 7,100,000 in 1936 and as it will get its share of new registrations in 1937 there will be more than 7,600,000 motor cars and trucks to pay taxes at the end of this year.

Texas Truck Lines Favor Higher Load Limit

ALTHOUGH the Texas Industrial Traffic League as a body decided not to go on record on either side of the issue of changing the present Texas motor transport law limiting truck loads to 7,000 pounds, fifteen of twenty-three members voting in a referendum on the question favored a change, it was reported following a meeting in Dallas.

Individual truck operators said, according to Frank J. Leffingwell, secretary and treasurer of the League, that unless Texas legislators raised the load limit, transport lines were prepared to ask an injunction of the courts to prevent the enforcement of the existing law. Some members of the League favored raising the limit to a figure between 10,000 and 20,000 pounds.

Discussion on the current proposal to permit private concerns to carry their own merchandise over the highways showed that some members believed that "such a law would put everybody in the motor transport business." On this issue also, however, the League voted to remain silent as a body.

Federal Taxes on Motorists Increased $42,000,000

MOTORISTS footed a Federal automotive tax bill that rose 14.2 per cent in 1936. Total bill for the U. S. was $338,100,126.56, an all time high since the inception of these special taxes. The net rise in the last twelve months was $42,013,146, according to the American Petroleum Industries Committee. Fifty-five per cent of the total Federal bill was made up from the levy of 1 cent per gallon on gasoline. Individual taxes for the year and the net increase over 1935 appear below.

Type of Tax	1936	Per Cent Increase over 1935
Gasoline	$186,321,448.52	8.2
Lubricating Oil	28,985,547.05	0.6
Transportation of oil by pipe line	10,423,607.70	12.6
Crude petroleum processed	859,758.21	*49.1
Automobiles and motorcycles etc. etc.	56,475,925.61	33.6
Trucks	8,044,342.79	20.5
Auto parts & accessories	8,747,944.70	24.6
Tires	31,837,510.34	40.4
Inner Tubes	6,404,041.64	17.7
TOTAL	$338,100,126.56	14.2

*decrease.

$25,000,000 Federal Aid for Secondary Roads

$8,642,000 To Be Available July 1 in the South. Secretary of Agriculture Announces Rules Under Which States May Qualify

RULES governing the expenditure of $25,000,000 in Federal funds to be apportioned among the States, Hawaii, and Puerto Rico for construction of secondary, or "feeder" roads during the next two years were recently announced by the Secretary of Agriculture.

To qualify for assistance from this fund States must:

1. Select a system of important secondary roads not to exceed 10 per cent of the State highway mileage.

2. Base these selections on facts to be obtained from a highway planning survey in each State.

3. Spend Federal funds, which must be matched by equal amounts from State funds, on this feeder road system only.

4. Select those roads which may be defined as farm-to-market, mine-to-market, rural free delivery mail, public school bus, and other important roads, which are essentially rural in character. Highways now part of the Federal aid system or that are likely to be added to it cannot be included in the secondary system.

Wide distribution of benefits in each State is desired. To accomplish this, the Chief of the Bureau of Public Roads is authorized to determine the minimum percentage of counties in which the funds authorized for any one or more fiscal years shall be used. This percentage is to apply in each State. All work done must be consistent with traffic needs. States must maintain in satisfactory condition all roads improved with Federal funds.

Total apportionments of Federal aid highway funds for the South for the year beginning July 1 amount to more than $68,974,000, including $43,212,000 regular Federal aid, $17,119,000 grade crossing work, and $8,642,000 for secondary or feeder roads, as published in the January MANUFACTURERS RECORD. The secondary road allotments by States are as follows:

Alabama	$532,939
Arkansas	437,550
Florida	340,953
Georgia	646,656
Kentucky	469,863
Louisiana	365,898
Maryland	208,787
Mississippi	449,542
Missouri	775,578
North Carolina	599,674
Oklahoma	599,124
South Carolina	344,438
Tennessee	536,222
Texas	1,591,522
Virginia	465,674
West Virginia	278,089
Total South	$8,642,509

Air Lines' Greatest Year

37 Per Cent More Passengers Carried in 1936 and 82 Per Cent More Express

FROM nineteen reporting air lines the Department of Commerce, Bureau of Air Commerce compiled data indicating that domestic air lines carried over 1,020,000 passengers in 1936, compared to the 746,000 flown in 1935. Planes covered over 63,777,000 air miles last year, or 8,397,000 more than during the previous year. An additional 3,136,000 pounds of express was carried in 1936, bringing the total for the twelve months to 6,958,000 pounds. Express pound miles flown gained 1,542,014,000 last year, while passenger miles flown went up 122,000,000.

Never before has the air transport industry touched these highs. Sixty-three per cent of seating capacity was used last year, as against 54 per cent used in 1935.

	1936	Per Cent Gain Over 1935
Passengers carried	1,020,931	37
Express carried	6,958,777	82
Express pound mi. flown	3,721,618,113	70
Miles flown	63,777,226	15
Passenger miles flown	435,502,283	38
Passenger seat mi. flown	680,708,230	18
Per cent used-seats	.....	63

The Arundel Corporation

BALTIMORE, MD.

Constructors and Engineers

Distributors of Sand-Gravel-Commercial Slag

A COMPLETE ORGANIZATION

Our complete organization with years of experience in successfully executing large construction contracts of various kinds is prepared to undertake the construction of earth, masonry and concrete dams, drydocks, dredging of all kinds, river and harbor improvements, deepening channels, hydraulic filling and rock work, tunnels, railroad construction, sewers and waterways.

PERSONNEL:

JOSEPH V. HOGAN, President
W. BLADEN LOWNDES, Vice-President
JOHN T. DAILY, Secretary
RICHARD A. FROEHLINGER, Treasurer
E. L. WADE, Assistant Secretary
J. N. SEIFERT, Assistant Treasurer
C. W. BLACK, Chief Engineer
HOWARD O. FIROR, General Supt.

MAIN OFFICE: Arundel Building, Pier 2, Pratt Street

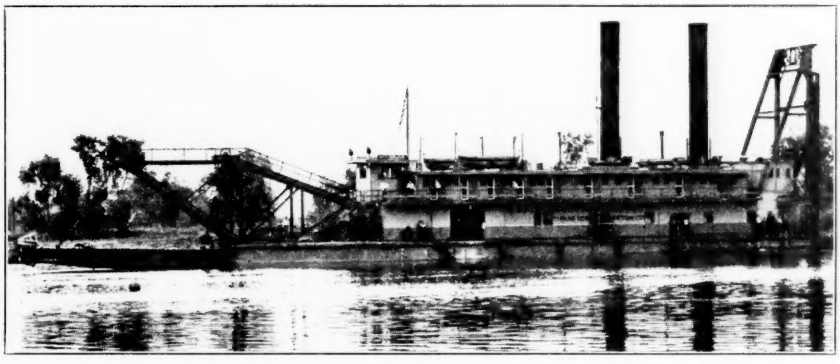
BALTIMORE, MD.

Branches: NEW YORK CITY—MIAMI, FLA.—NORFOLK, VA.

DREDGING

FILLING, LAND RECLAMATION, CANALS, PORT WORKS

RIVER AND HARBOR IMPROVEMENTS—DEEP WATERWAYS AND SHIP CHANNELS



We are especially equipped to execute all kinds of dredging, reclamation and port works in Southern waters.
Correspondence invited from corporate and private interests everywhere.

Contractors to the Federal Government

ATLANTIC GULF AND PACIFIC CO.

NEW YORK: 15 Park Row HOUSTON, TEXAS: Scanlan Building

EQUIPMENT NEW AND IMPROVED

All-Welded Concrete Bucket

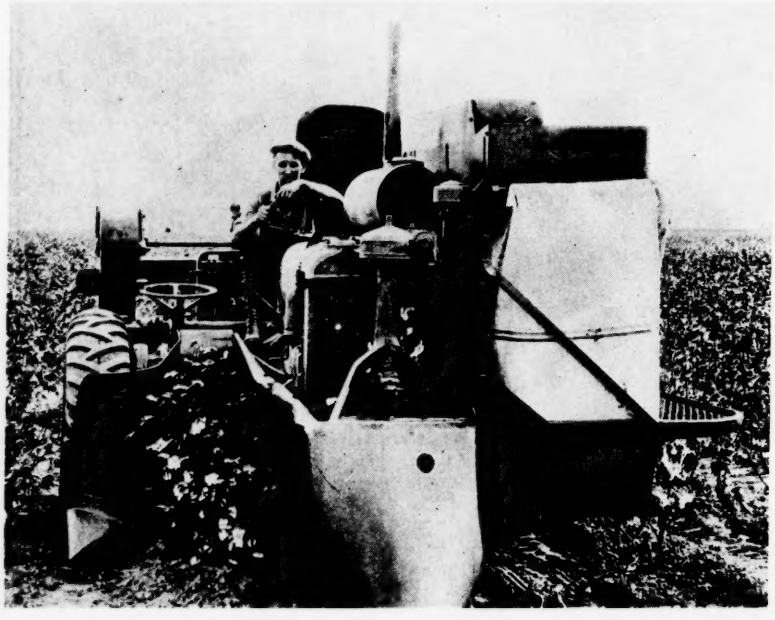
Designed particularly for operating in close forms and for handling low slump concrete, a new type of all-welded cylindrical concrete bucket is announced by the Dravo Corporation, Pittsburgh, Pa. The bucket, made in 2-, 3- and 4-yard capacities, is of the bottom dump controllable type, with no projecting levers and operated entirely by a hand wheel set in the outer shell. Two wheels are provided on the 4-yard sizes. In addition to facilitating the opening of the bucket in cramped quarters, the design provides an added safety feature in that there are no projecting parts to catch on forms, reinforcing steel, or clothing of men operating the unit. The bucket may readily be closed when only part of the concrete has been poured.

International Harvester Cotton Picker

Numerous mechanical cotton picking devices have been designed and tried with more or less success, but up to now it can hardly be said that a machine entirely successful has been introduced.

As, perhaps, the most prominent manufacturer of farm machinery in this country, the International Harvester Company of America Inc., Chicago, has had numerous inquiries as to what it has done in solving the problem of mechanical cotton picking. For many years, its engineers have been working on the problem, and in 1936 they evolved a model that was "fairly successful in field tests," but think the time is still remote when cotton pickers will be placed generally on the market.

New Cotton Picker of Spindle Type
McCormick-Deering Farmall picker with cleaner on Hopson Plantation, Clarksdale, Miss.



Diesel-Driven Pumping Station

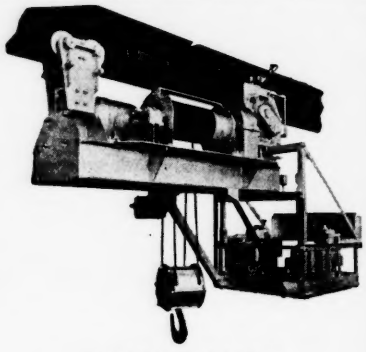
Enjoying the distinction of being the first pumping station in the country to be equipped with a fully automatic Diesel-driven centrifugal water pumping plant, the municipal pumping station at North Easton, Mass., completed its first full year of operation last December 7, and results have been very satisfactory. Power is supplied entirely by Hercules Diesel engines, made by Hercules Motors Corporation, Canton, Ohio. The pumping unit consists of a 600 G.P.M. Aldrich centrifugal pump directly connected to a six-cylinder, 4⅜ by 5¼-inch Hercules Diesel engine, operating at 1400 R.P.M. The installation was made by The Thermal Engineering Company, of Boston, Mass.

Trailers in Machinery Field

A canning machinery representative of the United Co., Westminster, Md., is demonstrating heavier machines which he sells by using a trailer. He had the Autocruiser Company of America, Inc., Baltimore, Md., mount a husking machinery unit on its standard automobile trailer chassis—completely equipped and ready to operate under actual production practices.

Hoist With Hydraulic Brakes

Because of proven high efficiency of hydraulic brakes in the automotive industry, The Euclid Crane and Hoist Company, Euclid, Ohio, has adopted the Lockheed type of hydraulic brake for travel movement on its new 10-ton monorail electric hoist, Model 903. For efficient braking, a slight touch of a foot pedal will suffice. Additional new features include the use of structural steel for added strength and lightness, thus requiring less power to accomplish travel movement while the wear on brakes is minimized. With the block fully enclosed and the gear case split horizontally for accessibility, the new hoist uses roller bearings throughout. Cable and drum flanges are recessed into end plates to add to compactness and eliminate possible fouling of lift cables.



Model 903 Euclid Hoist

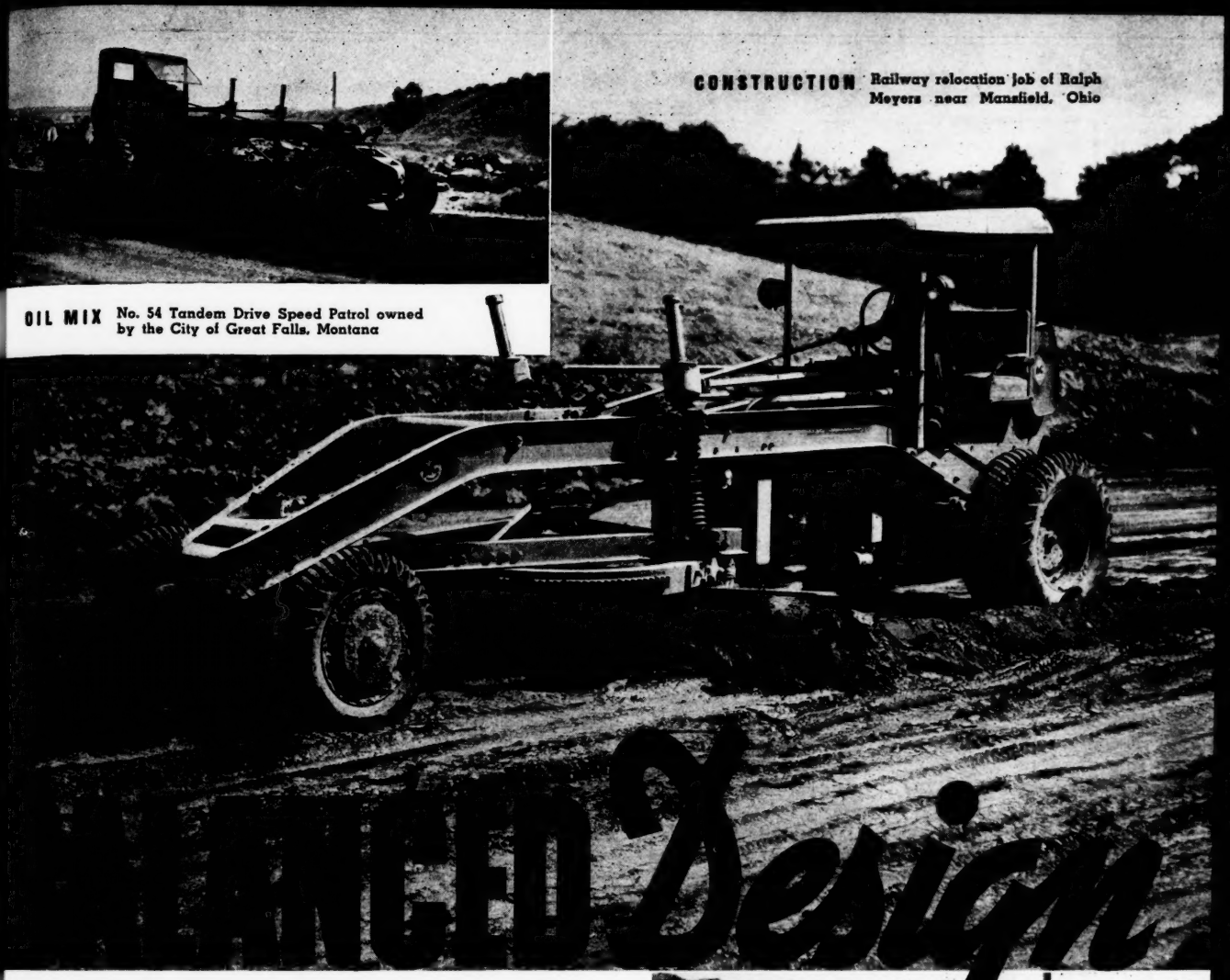
New "Caterpillar" Graders

Designed particularly for combination work in which quick movement of the blade from ditching position to the high rank cutting position is important, two blade graders, in 12- and 10-foot sizes, have been added to the "Caterpillar" line, according to announcement by the Caterpillar Tractor Company, Peoria, Ill. The new models have single member frames and are known as No. 66 Single Frame and No. 44 Single Frame, since they are in the same weight classes as the No. 66 and No. 44 Double Frame models. They are offered in both power and hand control.

Movable Floor For Truck Bodies

Marking an unique development in truck body design, a movable floor which simplifies loading and unloading, has been introduced by the Easton Car and Construction Company, Easton, Pa. The product is known as "Loryfloor" and truck bodies incorporating this feature are to be known as "Loryfloor Bodies." The new floor consists of a single sheet of extremely durable cord rubber belting supported beneath by tiers of steel rollers. It is operated by means of a crank handle which is used to roll up the floor, the handle being used at either end.

OIL MIX No. 54 Tandem Drive Speed Patrol owned by the City of Great Falls, Montana



CONSTRUCTION Railway relocation job of Ralph Meyers near Mansfield, Ohio

...ED Design

MAKES THE DIFFERENCE

ONLY A-C SPEED PATROLS GIVE YOU ALL THESE ADVANTAGES:

● **MORE EFFECTIVE BLADE PRESSURE**... 58.6% to 61.6% of weight is converted into blade pressure, highest of any motor grader. A result of long wheel base, long blade base and center engine mounting.

● **BIG, STURDY 64-INCH CIRCLE**... supplies rigid moldboard support. 35% of circle area is supported in guide shoes—double to triple the usual support.

● **ALL-BOLTED CONSTRUCTION**... prolongs frame life and reduces maintenance. Alloy steel "stretch-proof" bolts and double-thickness nuts.

● **COMPLETE WEAR TAKE-UP**... is your assurance against moldboard chatter, sloppy work and excessive repair bills.

● **PROPER BALANCE AND CONTROL**...for more efficient operation. All parts balanced to work together. Ample weight on front wheels to prevent side-slipping. Engine weight works WITH the blade—not against it.

● **MODERN ENGINES**.. of Allis-Chalmers own make. Gasoline, distillate . . or Controlled Ignition of Diesel fuel oil.

● **POSITIVE TRACTION**.. because of correct weight distribution. In Tandem Drive Patrols, tandem assemblies pivot with unusual freedom—assuring positive traction in irregular footing. No-differential final drive.

● **CORRECT SPEEDS**... for maintenance, oil mixing, scarifying, snow plowing, ditching or traveling. 2.3 to 10 M. P. H.

These are just a few of the reasons why so many contractors and public bodies are specifying A-C Speed Patrols.

ALLIS-CHALMERS SPEED PATROLS

TRACTOR DIVISION—MILWAUKEE, U. S. A.

INGLE OR TANDEM DRIVE...NO. 42 AND NO. 54 SIZES...GASOLINE, DISTILLATE, DIESEL FUEL OIL

COALS OF DISTINCTION

For ACI Quality Coals . . . from eastern Kentucky, eastern Tennessee, southwestern Virginia, and southern West Virginia . . . the best description is "Coals of Distinction."

Regardless of your manufacturing or market demands, there is a grade and size of ACI Quality Coal that will improve your operation or help you increase your business. ACI Quality Coals have proved by test to be particularly adapted to the following uses:

Power, by-product, retort gas, producer gas, water gas, metallurgical, ceramic, cement burning, railroad, bunker fuel, and for all General Steam and Domestic purposes.

Shipments are going through, despite the recent floods in the Ohio River Valley. ACI customers are being served. As usual, Appalachian Service continues. Industrial buyers and retail coal merchants are making use of this "clearing house" for information on merchandising and fuel engineering problems. The authorized agents of ACI also are giving similar service.

For "Coals of Distinction" that will serve you well, ask for ACI Quality Coals. Write for list of agents, "Where to Buy ACI Quality Coals."

APPALACHIAN COALS, INC.
TRANSPORTATION BUILDING
CINCINNATI, OHIO

THE GEORGIA MARBLE COMPANY
Producers and Manufacturers of
GEORGIA MARBLE
TATE, GEORGIA
Atlanta · Chicago · Cleveland · Dallas · New York

DRAWING MATERIALS
Drawing Instruments, Slide Rules, Planimeters, Drawing and Tracing Papers, Drafting Room Furniture, Surveying Instruments, Tapes.

PIGMENT Waterproof Drawing Ink
in black and white and a wide range of opaque colors. Catalogue sent on request. Inquiries solicited.
F. WEBER CO. Est. 1853
227 PARK AVENUE
BALTIMORE, MD.

THE STAGE IS BEING SET

America is preparing for a notable industrial advance. Is your business prepared to take advantage of it?

•

Correspondence invited

BALTIMORE COMMERCIAL BANK
GWYNN CROWTHER, *President*
BALTIMORE, MARYLAND
Member Federal Reserve System—Member Federal Deposit Insurance Corporation

FINANCIAL NEWS

Other TVA's

THE program announced to extend authority similar to the TVA to other government financed hydro-electric projects, is likely to meet with considerable opposition. While a permanent policy is yet to be stated, it was disclosed the plan at Bonneville Dam, and presumably elsewhere, is to sell power to municipalities and others. Competition with private industry for "yardstick purposes" is thus kept up.

Advancing Metal Prices

THE metal requirements of foreign countries, as well as our own, caused prices to advance rapidly on all exchanges during the latter part of February. The announcement of British requirements put the price of copper up to the equivalent of 15.9 cents; New York markets 15.25 cents. Domestic producers of copper and buyers also, curtailed operations to an extent waiting for more normal conditions in the market. Zinc, lead, tin and other metals, despite increased production, have been steadily advancing. Lead advanced more than $10 a ton in one day.

Patient Americans

THE American people are patient. There is nothing new about the income tax, but added to the other forms of taxation it seems a special burden this year to take the time and labor to wade through its intricacies.

The cartoonist sees a side of life most of us look upon rather grimly. He shows the harassed taxpayer in a snowfall of bills and memoranda trying to work out his tax forms, and we laugh, laughter being a saving grace of Americans. When we start to work, however, on the forms and realize the time it takes from important duties, the laugh becomes a little strained.

Added to the work now necessary to fill out income tax forms, are those for unemployment, old age pensions, capital stock and others. It places a burden upon office help whose time could be employed in productive enterprise. Unfortunately, the number of such forms and the amount of work are apt to grow instead of decline.

Under the Walsh-Healey Act

THE U. S. Steel Corporation has made clear its position in regard to competing on government contracts under the Walsh-Healey Act. It has not refrained from bidding on government contracts, but on the contrary has submitted bids and been awarded contracts since the act was made effective. On Navy work, however, which calls for a variety of products—plates, shapes, bars, sheet and strip steel—it would be necessary to introduce a different operating scale as to hours that would completely disorganize the whole production of several plants.

The statement given the press says: "The processes involving molten metal must, by the very nature and variety of the products, be operated on varying bases of hours and days. Once the stream starts in its heated state, it must be kept in motion until it reaches the condition of a finished product."

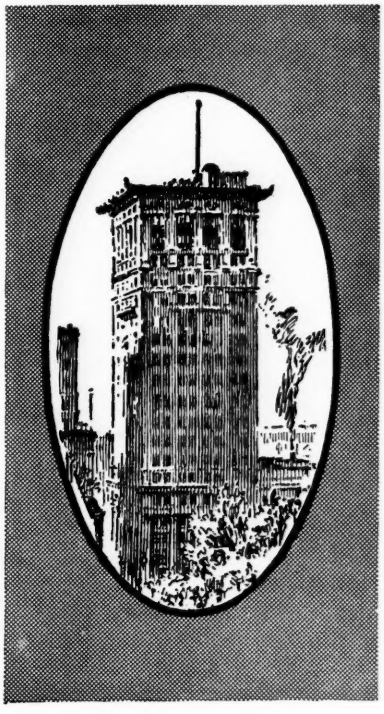
It is pointed out that a provision in the law allows for exceptions to be made if the Secretary of Labor finds that compliance "would seriously impair the public business."

(*Continued on page* 56)

FOUR VIRGINIA FACTORS

Low taxes, excellent transportation, nearness to sources of raw materials are three factors which have attracted many industries to Virginia in recent years.

The fourth is adequate banking facilities, the result of long experience with industry, such as are found in Virginia's largest and Richmond's oldest bank. Manufacturers are invited to get in touch with us.



FIRST AND MERCHANTS
National Bank of Richmond

JOHN M. MILLER, JR., President

Capital and Surplus $5,600,000—Member Federal Deposit Insurance Corporation

12,000 new jobs for New England

Shaded Areas Are Principal Communities Served with Gas or Electricity or both by New England Gas and Electric Association.

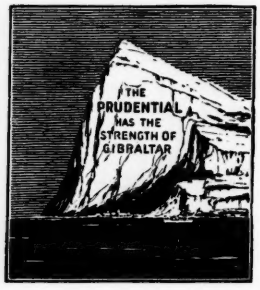
MORE than 12,000 new jobs were created during the past five years in communities served by the New England Gas and Electric Association of the Associated System. These new jobs resulted from the location of 168 new concerns in these areas and the expansion of 311 already there. This activity was encouraged by a definite *industrial development program,* in which community organizations, the New England Gas and Electric Association, and the System's Industrial Development Division cooperated.

The textile, shoe, metals, and 200 other types of New England industries profit from that section's skilled labor, nearness to mass markets, fine tradition of quality, and general spirit of cooperation.

Full information about this area may be secured from New England Gas and Electric Association, Cambridge, Mass., or from our Industrial Development Division, 150 Broadway, New York.

ASSOCIATED GAS & ELECTRIC SYSTEM

Low-premium life insurance protection.



Specializing in this field, we shall be glad to show you a plan, built to your own requirements.

THE PRUDENTIAL
INSURANCE COMPANY OF AMERICA
EDWARD D. DUFFIELD, President
HOME OFFICE. NEWARK, N. J.

Financial News

(*Continued from page* 54)

Inflationary Process

STRIKE news the past month has been disquieting. A new demand now comes from the organized railroad workers, said to number over a million, for an annual wage increase of $360,000,000. Undoubtedly as prices of commodities rise, the demands of workers for more money will increase.

It has been the policy of government that prices must rise in order to overcome the depression. Billions of dollars have been spent for bonus and relief, the AAA, CCC and other objectives. There has thus been introduced into the channels of trade a huge buying power with the effect of an increased demand for automobiles, textiles and commodities, with rising prices of everything from food to furniture. It is an inflationary process difficult to stop.

Accounts Guaranteed?

SPEAKERS at the recent meeting of the National Retail Credit Association held in Atlanta, voiced the prediction that retail sales will continue to forge ahead this year, and among the favorable trends cited the increase in sales of higher priced merchandise and so-called luxury items. It was stated that credit sales and collection percentages have shown steady, continuous gain since 1934.

J. J. Doran, Atlanta department store executive, said to the association: "If savings deposits in banks can be guaranteed against loss, it is reasonable to expect that accounts of businessmen established by a liberal credit policy, in turn advocated by government, also could be guaranteed against loss."

Insurance For Turpentine Trees

THE Farm Credit Administration in a press release February 19, announced a plan for insuring the productivity of turpentine forests against fire losses as having been worked out by the Farm Credit Administration in cooperation with one of the leading fire insurance companies. Under the plan, the FCA is assured that loans by the Federal Land Bank and the Land Bank Commissioner will be adequately protected against loss by fire, and "the Federal Land Bank of Columbia (S. C.) is now in position to offer favorable mortgage loans to turpentine timber growers in Georgia, South Carolina and Florida. So far the forest insurance is available only to Federal Land Bank and Commissioner borrowers."

Government Debt

FINANCIAL authorities, in discussing what size Federal debt the United States can stand without serious impairment to its credit, have been pretty much in agreement that it could probably go as high as $50,000,000,000 without placing too great a strain upon the resources of America. It was estimated in 1922 that our national wealth (taxable), developed and undeveloped, was $320,000,000,000. Under depression conditions this estimate declined in 1935 to $240,000,000,000.

If we accept as correct the idea that the Federal government credit can stand a $50,000,000,000 debt, it would seem to be the part of wisdom now to begin to be cautious in appropriating additional huge sums for whatever purpose. If to the present Federal debt of $36,000,000,000 is added the public debt of states, counties and municipalities, it is probable that the total public debt of the country is as much as $54,000,000,000.

FOR SERVICE TO THE SOUTH

NATURAL GAS service from this system is available for domestic, commercial, and industrial uses throughout a wide area in the

STATE OF MISSISSIPPI.

Aberdeen	Kosciusko	Starkville
Amory	Louisville	Tupelo
Columbus	Macon	Vicksburg
Durant	Meridian	West Point
Goodman	Pickens	Yazoo City

Available also in

ALABAMA & GEORGIA.

SOUTHERN NATURAL GAS COMPANY.

Watts Building — Birmingham, Ala.

Three hundred and forty acres of rolling hills and stately oaks

Made available through purchase of rifle reservation between the world-renowned cities

BALTIMORE - ANNAPOLIS - WASHINGTON

FOR LOW-COST HOUSING DEVELOPMENT

The Washington Administration is demanding more housing projects for people of moderate means.

Here's an answer to relieve housing congestion in Baltimore and Washington: At Glen Burnie, 340 acres of rolling hills and stately oaks will enable many families to carry out long-cherished ambitions for modern homes at low cost with latest methods of lighting, heating and general appointments.

The influx of government employees and workers to Washington and Baltimore is creating a demand for more houses which can be located admirably at Glen Burnie.

Modern inter-urban transportation and a new dual highway under construction bring within a stone's throw an unmatched group of cities — Washington, Baltimore and Annapolis.

Write for landscape plat and detailed information. An especially attractive offer will be made to a responsible applicant.

THE GLENBURNIE DEVELOPMENT COMPANY

1409 L Street, N. W., Washington, D. C. GEORGE B. FURMAN, President

« « LETTERS FROM READERS » »

Responsibility of Organized Labor

McEwen Lumber Company
Hardwoods
High Point, N. C.

Editor, Manufacturers Record:

Your front page editorial on "Responsibility" brings a thought concerning the lack of responsibility of the labor organizations.

In all their dealings, labor organizations have to do with responsible corporations, and yet they are, so far as I know, without any financial responsibility whatsoever. I have long been of the opinion that organized labor would do well for themselves if they would make themselves responsible for their acts. For instance, in the glass strike, it is my understanding, the labor organization would make a requirement of the glass manufacturers that they agree to sell no one except those operating under a union, or closed shop, whereas, they would not be responsible for any damage, loss, or trouble caused by such a case if adopted by a responsible manufacturer of glass.

It would seem to me that organized labor would make themselves financially responsible, then they would be entitled to a place in court.

W. B. McEwen.

Constructive Work

Continental Gin Company
Birmingham, Ala.

Editor, Manufacturers Record:

I feel that your publication has been doing good constructive work, not only throughout the past year, but also throughout the years it has been published, and I wish you every success for the future.

A. L. Smith,
President.

One of the Best

The North State Lumber Company
Manufacturers of
Kiln Dried North Carolina Pine
Charleston, S. C.

Editor, Manufacturers Record:

We have been reading the Manufacturers Record for a number of years and consider it one of the best that comes in our office.

G. J. Cherry,
President & Treas.

Serving the South for 55 Years

Palmetto Engineering Co.
Aiken, S. C.

Editor, Manufacturers Record:

The Manufacturers Record has been published 55 years, and I have known it rather intimately during the latter half of that period, when I began the practice of engineering. I greatly admired the editorial service of the lamented Richard H. Edmonds, who was outstanding among the leaders of our country in shaping and directing the unfolding potentialities of the South.

The Manufacturers Record today is nobly carrying on this work as perhaps no other single agency, since it not only broadcasts to the world the natural resources of the South but seeks to inspire in the Southern people themselves a feeling of accomplishment in this their native land. All this the Manufacturers Record has done and is doing, some times in spite of the fact that in order to make clear its purpose it has to steer athwart the political tide—knowing full well how resentful Southern politicians are to criticism of their policies when such policies appear to give them the upper hand in governmental affairs.

However, regardless of such differences it is hardly conceivable that manufacturers of machinery and equipment for the development of this, the greatest naturally endowed section of our country, could miss the opportunity to avail themselves of the unequalled advertising advantages as offered by the Manufacturers Record. And I say this advisedly and unreservedly.

L. H. McCullough.

Southern Financing for Southern Industry

Pulp and Paper Laboratory
of the
Industrial Committee of Savannah, Inc.
Savannah, Ga.

Editor, Manufacturers Record:

The Manufacturers Record has done one of the most important services that has ever been done for Southern industry in publishing the article by Robert M. Hanes on "Southern Financing for Southern Industry" in your January issue.

Chas. H. Herty,
Director.

Direct Benefits

The Perry & Derrick Company, Inc.
Cincinnati, Ohio

Editor, Manufacturers Record:

We make a point to follow up jobs in the Daily Construction Bulletin and the Manufacturers Record that might look promising. We have gotten enough business to more than justify the expense incurred in this effort, aside from the cost of our subscription to your publication. We have no hesitancy in recommending your publication as providing almost unlimited contacts on many lines.

A. B. Gartner.

Business Outlook

The Robbins Knitting Company
High Point, N. C.

Editor, Manufacturers Record:

Business, in our opinion, has gathered momentum enough to warrant a steady progress and will increase in momentum provided the forward trend is not impeded by obstacles that are unforseen.

C. C. Robbins.

Graphic Story of the Advancing South

Farm Chemurgic Council
Dearborn, Mich.

Editor, Manufacturers Record:

If available will you please ship to the Farm Chemurgic Council 50 copies of your January issue. This book certainly presents a graphic story of the advance of the South. And from the news angle and presentation it represents the "perfect job."

In an effort to add to this Southern March of Progress, the Farm Chemurgic Council will sponsor a series of Southern meetings this spring.

Hugh C. White,
Director of Publicity.

Brought Inquiries

Jordan Bros. Lumber Co.
Norfolk, Va.

Editor, Manufacturers Record:

In disposing of our entire plant to Familant, Inc., Suffolk, Va., we wish to thank you for the interest you have taken in the sale of our property, and to assure you that we feel the advertising in Manufacturers Record was of assistance to us in securing a number of inquiries on this property.

C. M. Jordan,
President-Treasurer.

Located Many Jobs

Carteret, N. J.

Editor, Manufacturers Record:

We have taken the Manufacturers Record for 25 years, and so you know by that what we must think of it. It has located many a job for me when I was doing mill construction work—thereby making it so I could help others to get work.

Sam Millican.

Developing New Product

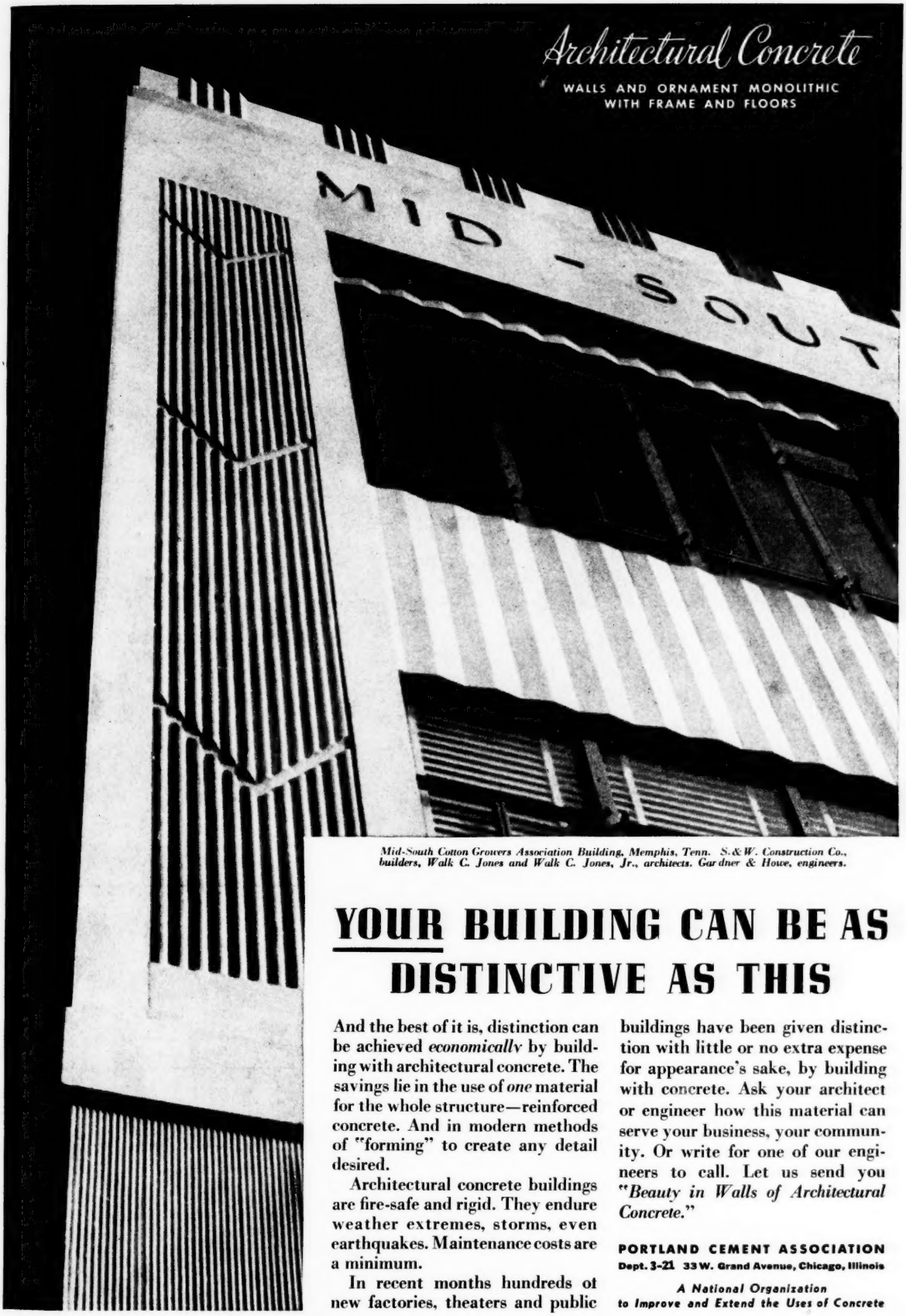
Deep River Coal, Inc.
Gulf, N. C.

Editor, Manufacturers Record:

It will interest you to know that first working with a view to producing from a small vein semi-anthracite coal and pulverizing shale for fertilizer filler, the subject grew to a point where even observation showed our product far too good for the latter purpose. The next step was the definition by an authority. He termed it "an intermediate between graphite and anthracite;" a product much in demand for the paint and foundry industries.

Finally it has been determined as "Fossil Fish Rock" from which is extracted "Ichthyol" leaving as a by product valuable material for shellac, varnish, paint, stove and shoe polish, disinfectants, etc.

C. H. Gunter,
Manager.



Mid-South Cotton Growers Association Building, Memphis, Tenn. S.&W. Construction Co., builders, Walk C. Jones and Walk C. Jones, Jr., architects. Gardner & Howe, engineers.

YOUR BUILDING CAN BE AS DISTINCTIVE AS THIS

And the best of it is, distinction can be achieved *economically* by building with architectural concrete. The savings lie in the use of *one* material for the whole structure—reinforced concrete. And in modern methods of "forming" to create any detail desired.

Architectural concrete buildings are fire-safe and rigid. They endure weather extremes, storms, even earthquakes. Maintenance costs are a minimum.

In recent months hundreds of new factories, theaters and public buildings have been given distinction with little or no extra expense for appearance's sake, by building with concrete. Ask your architect or engineer how this material can serve your business, your community. Or write for one of our engineers to call. Let us send you "*Beauty in Walls of Architectural Concrete.*"

PORTLAND CEMENT ASSOCIATION
Dept. 3-21 33 W. Grand Avenue, Chicago, Illinois

A National Organization to Improve and Extend the Uses of Concrete

INDUSTRIAL NEWS

Summerville Offers Advantages for Factories

Located in pine belt of South Carolina, the Town of Summerville offers an excellent site for the location of factories, with an exemption of town taxes for a period of five years. There is an adequate water supply from six artesian wells, filtered for all purposes, while labor is plentiful. Some capital, it is said, is available to reliable interests who would build manufacturing plants. The territory is covered by the South Carolina Power Company and power rates are low. Information regarding advantages of the community may be obtained from the town clerk.

Vice President of Frick Company

W. H. Aubrey has been elected a vice president of Frick Company, Inc., Waynesboro, Pa., manufacturers of refrigerating, ice-making and air conditioning equipment. Since 1932 Mr. Aubrey has served the company as sales manager of its Ice and Refrigerating Machinery Department, and will continue in that capacity while also serving as an officinl. Other vice presidents of the company include J. G. Benedict, president of the Landis Machine Company, Waynesboro, and D. N. Benedict, general manager of Frick Company.

Here's THE SKILL AND EXPERIENCE TO DESIGN FOR YOUR NEEDS—

P&H OVERHEAD CRANES

● More than 10,000 P&H Cranes have gone into service since the first three-motored crane was built in P&H shops about 50 years ago. Harnischfeger engineers offer you the most practical solution to every sort of crane problem. Through larger volume, advanced production equipment and single manufacturing responsibility, P&H cranes provide many extra advantages at no increase in cost. Your inquiry will bring complete information.

HARNISCHFEGER CORPORATION
4427 W. National Ave. *Established 1884* Milwaukee, Wisconsin

53 YEARS OF LEADERSHIP

HARNISCHFEGER CORPORATION
ELECTRIC CRANES • HOISTS P&H MOTORS • ARC WELDERS • EXCAVATORS

Gibson Heads Wellman Engineering Company

The Wellman Engineering Company, Cleveland, Ohio, announces the election of Alfred E. Gibson as president, succeeding George W. Burrell, who becomes chairman of the board. Mr. Gibson, upon his graduation in 1909 from Ohio State University, entered the employ of the company in its operating department. Leaving Wellman in 1926, he joined Fulton Foundry and Machine Company, Cleveland, as vice president, later being elected president, but returned to Wellman in 1928. He is president of the American Welding Society and holds membership in several other engineering and industrial organizations.

Blaw-Knox Officials Elected

At a meeting of the board of directors of Blaw-Knox Company, Pittsburgh, Pa., H. B. Loxterman was elected a vice president and Albert L. Cuff, secretary. Officers elected to subsidiary companies include W. H. Eisenbeis, who was made vice president of the Union Steel Casting Company; John Baker, sales manager of the Union Steel Casting Company, and P. M. Fleming, vice president and director of the Pittsburgh Rolls Corporation.

Abundance of Orders

An abundance of orders on hand that must be filled is the encouraging note from The Jos. Honhorst Co., plate and sheet steel products, Cincinnati, Ohio.

They had placed their equipment of machinery, motors, records and plant stock high out of the reach of the water as they thought—above the 74 foot stage, but it got to 80 feet, and they have been busy cleaning up since. They have now resumed business again, and are determined to add to their record of 1936, when they did as much business in four months as they did in a whole year before the depression.

Offers Factory At Half Price

Conveniently located in Southwest Virginia, with adequate power and water and pulverized coal on the ground, a factory is offered for sale by Oscar A. Wall, broker, Box 1524, Roanoke, Va. The property embraces five acres of land, three spurs 600 feet, and six brick and steel buildings.

Westinghouse Moves Offices

The Westinghouse Electric and Manufacturing Company will move its Pittsburgh office and some of its general offices now at East Pittsburgh to the Union National Bank Building in Pittsburgh, about May 1. This central location will facilitate operations of the Pittsburgh district office, subsidiary district offices and headquarters offices, including executive, legal, industrial relations, sales and accounting departments.

Diamond Chain Distributors

Diamond Chain and Manufacturing Company, Indianapolis, Ind., announces the appointment of Smith-Courtney Company, 7th and Bainbridge Streets, Richmond, Va., as distributors for Diamond Roller Chain and Diamond Flexible Couplings.

Tube-Turns Moves Offices

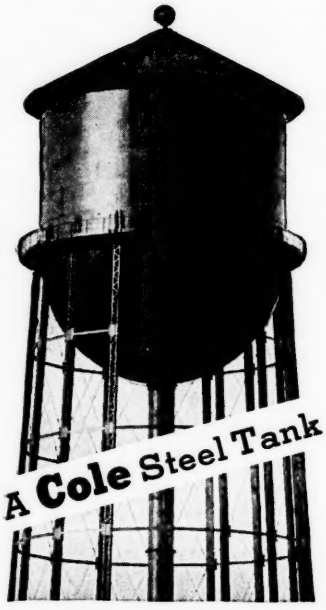
Tube-Turns, Inc., Louisville, Ky., has moved from its old location at 425 Fifth St. to new and larger quarters at 224 East Broadway, Louisville. This company manufactures seamless drawn fittings for pipe welding.

Fifth International Heating and Ventilating Exposition

The Fifth International Heating and Ventilating Exposition will be held at Grand Central Palace, New York, January 24-28, 1938. Since its inception in 1930, this exposition has been held every two years, the first showing being in Philadelphia, with succeeding ones in Cleveland, New York, and Chicago. The annual meeting of the American Society of Heating and Ventilating Engineers, under whose auspices the Exposition is held, will take place the same week in New York. Three floors of Grand Central Palace have been reserved for the Exposition and invitations to participate have been extended to a number of organizations in fields concerned with heating, ventilating, and air conditioning. Details of exhibit arrangement and leasing will be in charge of the International Exposition Company, Grand Central Palace, while the Exposition will be under the personal direction of Charles F. Roth, manager.

(*Continued on page* 62)

Tank Builders For Over 80 Years!



One of a Million!

This tank has a capacity of one million gallons—one of the country's largest water tanks, and highest towers—built and erected by COLE for Gastonia, N. C. Dimensions: 56 ft. in diameter with a full hemispherical bottom, giving total depth of 62 ft. 16 columns comprise the supporting towers; the distance from base to top of tank proper is 200 ft. Note the attractive design, in addition to this substantial and practical structure.

This is only one of the hundreds of tanks we have fabricated for cities and towns from Kansas to Florida, and is only one of the many types we build. If it's a metal tank we can make it. PUT YOUR PROBLEM UP TO OUR ENGINEERING DEPARTMENT.

Let us know your needs for large vessels or other fabricated work of steel and alloy steel.

Write for booklet "Tank Talk"—No. 10-D.

R.D.COLE MANUFACTURING CO.
NEWNAN EST. 1854 GEORGIA

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Every Davis Tank embodies the accumulated technical skill of forty-six years of tank-building.

Just as cypress is without superior for investment economy, so are Davis Tanks unsurpassed in material, method of construction and reinforcing for service. A Davis water tank on a Davis steel tower, are plant purchases which have almost no limit of life and usefulness. Ask for new catalog of sizes and capacities.

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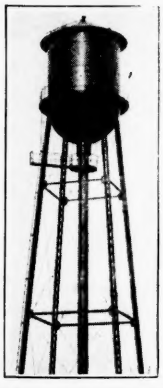
P. O. Box 5, Palatka, Florida



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Send me . . . AT ONCE . . . your free specification book of Anchor Chain Link Fence.

Name..... Title.....

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INDUSTRIAL NEWS

(*Continued from page* 60)

Plant Sites

Many communities in the South are offering free plant sites or other inducements for the establishment of plants seeking available labor. W. L. Crumpacker, Blacksburg, Va., writing of sites available on two railroads and served with high tension power lines, says there is ample surplus labor in the vicinity of Blacksburg for the establishment of a plant or plants to give employment to 500 workers.

Caterpillar Tractor Company Has Record Year

According to the annual report of Caterpillar Tractor Company, Peoria, Ill., to its 15,000 stockholders, the company reached new high levels during 1936 in payroll, employment and sales. Showing an increase of more than 48 per cent, the company's sales amounted to $54,118,003 in 1936, compared to $36,447,193 in 1935, while the number of employees was increased by approximately 2500, to a total of 11,500, which was approximately 55 per cent more than the number employed at the end of 1929. The company's 1936 payroll totaled more than $17,000,000, with material increases in wage rates. Net profits for 1936 amounted to $9,889,592, compared with $5,949,307 for 1935, an increase of more than 65 per cent.

Gar Wood Appointments

Don J. Luty, chief engineer of Gar Wood Industries, Inc., Detroit, Mich., has been promoted to the office of assistant general manager of the Air Conditioning Division, according to Frank H. Dewey, general manager of the division, and Norman Saylor has been appointed manager of the company's Detroit branch. Mr. Luty has been with the company for many years and Mr. Saylor joined the Air Conditioning division last year.

Maryland Drydock Company Elects Officers

George H. French has been elected president of The Maryland Drydock Company, Baltimore, to succeed George E. Probest who was elected chairman of the board of directors and treasurer of the company. Langdon E. Pickering was re-elected vice president. Other officers elected include J. E. Adams, secretary and assistant treasurer, and J. Wilbur Bittorf, assistant secretary and assistant treasurer. Maryland Drydock Company is a subsidiary of Kopper's Company, Pittsburgh, Pa.

Second Machine Tool Electrification Forum

Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., will sponsor a second Machine Tool Electrification Forum at its East Pittsburgh Works April 19-22, at which will be discussed "New Methods and Designs for Machine Tool Electrification."

Goodyear Southern District Manager

The Goodyear Tire and Rubber Company, Inc., Akron, Ohio, has appointed E. A. Filley as Southern District Manager of the Mechanical Goods Department, with offices in Atlanta, Ga. He will supervise the sale of these goods in the company's Atlanta, Birmingham, New Orleans, Jacksonville, Charlotte, and Richmond branches.

Some observations on America's rubber industry by P. W. Litchfield, president of The Goodyear Tire and Rubber Company, Akron, Ohio, have been incorporated in a folder which the company has issued under the title of "How Research in Rubber Contributes to Modern Ways of Living." Mr. Litchfield points out that the time and money expended by the industry on research are reflected today both in a higher quality of and increasingly wider uses for rubber products. In this connection, it is interesting to note that the Goodyear company, itself, in the past ten years, has expended nearly $17,000,000 on research and product development alone, and today there are more than 400 persons at Goodyear who devote their full time to devising ways and means of making better products and finding wider uses for them.

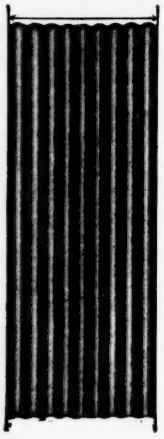
Rail Executives in Major Changes

Major changes in traffic executive personnel affecting two of the South's prominent railway officials have been announced by the Louisville and Nashville Railroad and the Southern Freight Association. John E. Tilford, for the past nine years chairman of the Southern Freight Association, returns to the Louisville and Nashville Railroad in a newly created post of Assistant Vice President, and Joseph G. Kerr, now assistant to the vice president of the Association of American Railroads at Washington, D. C., has been elected chairman of the Southern Freight Association to succeed Mr. Tilford.

Modern Laboratories for ARMCO

Comprising a total of 43,500 square feet and costing about $260,000 exclusive of equipment, new research laboratories under construction at Middletown, Ohio, for The American Rolling Mill Company is considered one of the most unique industrial buildings in the world. Within five weeks after announcement of the project by President Charles R. Hook of Armco, structural steel fabricated from heavy rolled sections at the Cleveland shops of the Austin Company was rising on the site. Steel was delivered in sections to facilitate assembly. The welded steel framework will be enclosed by an assortment of construction materials applying results of long research by the glass and steel industries. The building is being equipped for summer and winter air conditioning.

Write for Prices on



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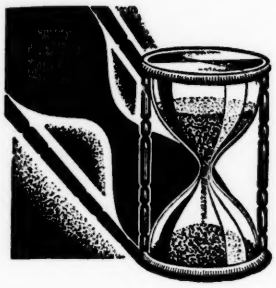

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SAFETY PAYS DIVIDENDS

By

G. A. Burke

National Safety Council

Accident Prevention in Industry Producing Outstanding Results in Reducing Its Portion of Fatalities, Injuries and Financial Losses Reaching $2,000,000,000 a Year

INDUSTRY, currently, is swapping danger for dollars and buying Safety pfd. on a "bull" market that pays daily dividends in cash and human happiness. "Hedging," that conservative game of "playing it safe" is paying stupendous profits.

Shared by employees, aided and encouraged by legislation and complimented by stockholders, many of the nation's institutions of manufacture and trade have adopted accident prevention practices that loosen the grip of accident-deaths or injury upon thousands of industrial workers every year, preserves them for their families and for many extra years of useful, much needed toil.

Secondarily, compensation payments to injured employees drop, rates for industrial compensation insurance shrink in the wake of good records of fewer lost-time accidents. Tools and machinery are not damaged by the upset that accidents would cause; material is not wasted and fellow employees are spared the confusion and avoid the loss of time that are barnacles on the hull of every work-shop mishap.

Good plant safety records have been known to produce the extra margin of profit that permitted "black ink entries" instead of the "red ink" that is the forerunner of receivership and bankruptcy.

The cost of accidents is an imposing item on every analysis of production expense; workers are told about and shown "the safe way" of doing their jobs by well-trained safety engineers and supervisors and then the growth and practice of safe work habits are watched and checked. As Charles R. Hook, President of American Rolling Mill Company, puts it, "Safety is the first common ground on which management and men get together and discuss their common problems."

Machinery is safeguarded and management further discharges its responsibility for the safety of employees by improving working conditions and providing safety clothing and equipment (safety goggles, safety shoes, safety aprons and boots, etc.).

The National Safety Council recently published a symposium of thought on industrial accident prevention, entitled "Safety," which included expressions from more than a score of the country's business leaders. They're interesting.

R. H. Cabell, President, Armour and Company — "From a standpoint of economy, accident prevention is good business. Organized safety has been a part of the program of Armour and Company for 20 years."

Lammot duPont, President, E. I. duPont de Nemours & Company—"The duPont Company's activities towards preventing personal injuries to its employees has produced outstanding and worth-while results. Based on annual frequency and severity rates for six years (1920 to 1925, inclusive), we have estimated that improvement in safety work during the ten years that followed prevented 197 employee-accident fatalities, 387 permanent, partial disabilities and 4,654 temporary disability injuries."

Alfred P. Sloan, President, General Motors Corporation—"It is gratifying that 1935 was General Motors best year for plant safety. Although man-hours worked increased 21 per cent to 331 million, the number of accidents was reduced by 24 per cent; accident frequency dropped 38 per cent, severity 35 per cent. The first quarter of 1936 showed further improvement over the same period of 1935."

P. W. Litchfield, President, Goodyear Tire and Rubber Company—"We take pride in our safety record at Goodyear, but our goal is full-time operation with no lost-time accidents. Goodyear places the responsibility for all accidents upon supervision—the man responsible for the department is responsible for its safety."

S. G. McAllister, President, International Harvester Company.—"Responsibility for reducing industrial accidents is clearly a challenge to industrial management. Accident prevention has been an organized activity for all International Harvester's operations for more than 25 years."

S. F. Shattuck, Vice-President, Kimberly-Clark Corporation.—"The management of Kimberly-Clark Corporation believes that the elimination of accidents is of sufficient importance to be placed on a par with and pressed just as vigorously as operation and production."

S. A. Holman, Vice President, Libby, McNeill & Libby.—"Industry's portion of the nation's $2,000,000,000 annual bill for accidents runs into many millions of dollars, and must be added to production costs. In our organization we have taken definite steps to decrease the economic waste and human suffering due to accidents."

Paul Hoffman, President, Studebaker Corporation—"In 1922 Studebaker's accident frequency rate was 31.3 lost-time accidents per one million man-hours worked. Since then, organized safety work has brought that rate down tremendously—to 6.88 for 1935. Entirely apart from the humanitarian viewpoint, industrial safety pays large dividends in avoidance of huge economic losses that result from accidents."

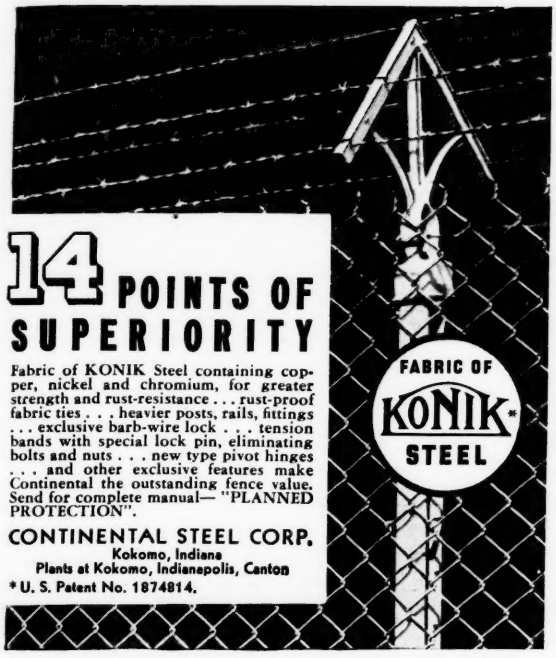
G. F. Swift, President, Swift & Co.—"We have estimated, conservatively, that accident prevention work in our plants has produced savings in compensation, medical expense and operating delays that totalled more than $1,750,000 during the last 12-year period. This figure omits the greatest reward, the inestimable saving to the employee and his family."

H. M. McAdoo, President, The United States Leather Company—"To our company safety means that each employee receives full wages, rather than the percentage of wages fixed by law, as compensation, when he is absent because of injuries. Production is not slowed up as it ordinarily would be when another employee is delegated to the regular duties of an injured employee. There is no loss of time to other employees which naturally follows when an accident occurs. Goods in process are not spoiled, nor quality lowered. Machines and tools are not damaged."

F. B. Davis, Jr., President, United States Rubber Products, Inc.—"Today the rubber industry is the safest large industry in the United States, although 15 years ago it was one of the most hazardous. This change has been brought about because "safety first" was adopted, not as a trite slogan, but as a tenet of sound business management. The position we take is that management should expand its energies, not in deploring accidents, but in eliminating them, and that one of the gravest responsibilities of management is to see that they are eliminated."

Edgar S. Bloom, President, Western Electric Co.—"We have a large staff of engineers responsible for the standardization and use of all equipment necessary for safe operation, such as goggles, safety shoes and safety clothing. This is an obvious and essential preliminary to any accident prevention program, but to make effective the planning of engineers, we have learned that it is necessary to train the worker to think safety and work safely and to train the supervisor that it is his job to help the workman prevent accidents."

P. C. Thomas, Vice-President, The Koppers Coal Company—"No modern and forward-looking company engaged in the mining of coal can survive without a definite safety program. No safety program, no matter how carefully planned, can survive unless it has the active support of management."



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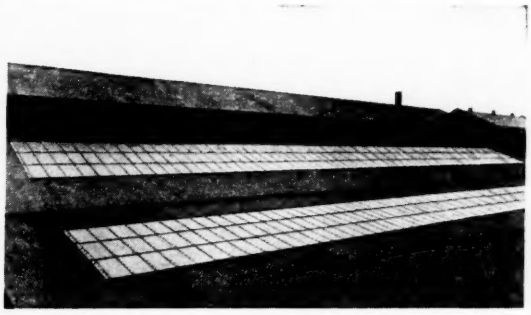

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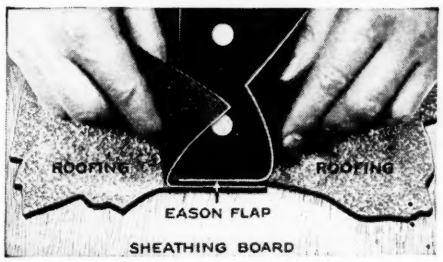

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AGAIN Ruberoid brings to industrial concerns improved roofing protection. This time it's *Genuine* RU-BER-OID Roll Roofing with Eason Flaps.* This 7-layer, built-up seam prevents wind ripping, loosening of nails, and lap leaks, and yet the extra cost is trifling.

With Eason Flaps all nails are sealed with two layers of fabric and one of asphalt seam cement. Nails cannot rust or pop out because of heat. Virtually a 7-layer, built-up seam with closed lap edge, there is no opportunity for wind or water to get under it.

Genuine RU-BER-OID is supplied with Eason Flaps only upon request. The extra cost, considering the extra protection, is trifling. It will pay you to investigate. Address Dept. M. R. 3-37 *Patented

RU-BER-OID

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LIFE INSURANCE MOVES FORWARD

LIFE Insurance Week is to be observed from May 17th to 22nd.

More than $3,000,000,000 was paid to beneficiaries in 1936 by all life insurance companies, according to an estimate by B. D. Flynn, Vice President and Actuary of the Travelers Insurance Co.

More than $3,000,000,000 was paid to insurance was written during last year and approximately $104,000,000,000 of life insurance is now in force.

The total assets of all life insurance companies at the end of 1936 were approximately $24,750,000,000, a gain of about $1,500,000,000 over 1935 and $7,268,000,000, or 41 per cent more than in 1929.

Life insurance funds are invested with the safety of principal as the first requirement. The industry is a large holder of bonds and it is said the bulk of the securities were purchased before the interest decline. Real estate mortgages, in which the industry is a heavy investor, have been paying a better average return than bonds.

The life insurance situation in the Southern states, where more than $4,000,000,000 of new business is being written annually, is reflected in a recent statement by A. Morgan Duke, President of the Gulf States Security Life Insurance Co. of Dallas. This company was organized as a legal reserve company nine years ago. Assets of the company, all of which are invested in Texas real estate, mortgages, bonds and other securities, have reached $4,998,000, or a gain of $1,257,588 for the year. The company has paid a total of $3,682,129 to policyholders and beneficiaries since its organization. "Life insurance," said Mr. Duke, "is one of the truest barometers of business conditions, and the excellent progress and growth reflected not only by the statement of our company but those of all Texas life insurance companies indicates the sound basis of financial affairs in this state."

Similarly, the progress being made by the life insurance industry of the South and the nation at large is a tribute to the inherent soundness of the principles of life insurance and a measure of the rate of business recovery of the country.

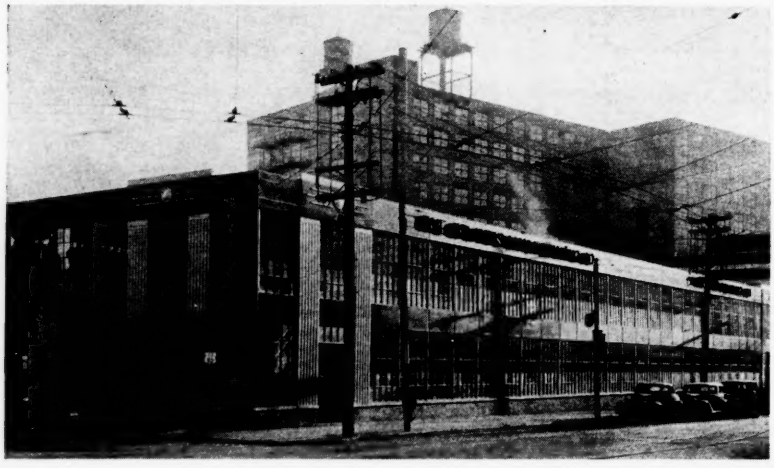
Fabricated Industrial Buildings

THE new plant of The Edwards Manufacturing Co., Cincinnati, O., embodies unusual features of a fabricated building which can be constructed in units and directly assembled at the site. "Details of the new unit were worked out with this point in mind," said Howard W. Edwards, President of the Company, and "with the pioneering out of the way—this having been accomplished on our own building—we can manufacture a highly competitive and economical modern industrial building."

Made of glass and reinforced concrete and enclosed with insulated steel and glass walls, the structure has no columns in the exterior walls, which are virtually one continuous window in each of the two stories. This type of construction is adaptable to industrial buildings of any number of stories. The new structure, which is 50 x 200 feet, is the first unit of an ultimate building to cover the entire area owned by the company. All elements of the building of a sheet metal nature were fabricated in the Edwards plant, including the insulated steel walls and the stainless steel features which embellish the exterior of the building.

In addition to 5,000 feet of rolled-steel H piling driven to 80 feet below the street level, other materials consisted of 60,000 pounds of electric-welded structural steel framing, 2,000 sq. ft. of insulated steel walls, 5,000 sq. ft. of glass, 800 cu. ft. of reinforced concrete, 90,000 pounds of reinforced steel, and 10,000 sq. ft. of insulated steel roof deck.

Many Unique Construction Features Are Embodied In This New Unit of the Edwards Manufacturing Co.



Modernized Chattanooga Plant Consolidates

(*Continued from page* 40)

products, too varied to be produced in the other sections, are installed on the jobbing floor. On the green sand molding floor are the Jarring and Rollover molding machines, cranes and hoists of various capacities and sand conditioning and conveying system for reducing manual operations to a minimum.

The rectangularly-shaped pipe pit is also equipped with a complete sand conditioning and conveying system to bring properly mixed and tempered sand from the shake-out direct to the flasks in which the molds are rammed on two pneumatic jar rammers of 8,000 pounds capacity each. Other equipment includes two 60-foot span 10-ton traveling cranes, two 3-ton core floor hoists, a triple battery of 3-car core ovens, down draft mold oven and a socket core oven, all stoker fired. A 60-foot crane runway commands the pipe equipment storage yard. The battery of four 60-inch cupolas along the east side of the main foundry are capable of providing 40 tons of metal per hour.

One of the interesting features in construction of this foundry was the cast iron "USICAST" roofing, a product of the United States Pipe and Foundry Company. The main foundry required 57,550 square feet and the machine shop building, 25,600 square feet of roofing. It consists essentially of standard plates for 4-foot purlin spacing and semi-circular cap plates, which cover the joints between adjacent plates and which are also provided with lugs for attachment to the roof framing. Joints in alternate courses are staggered, with a resulting interlocked roof. Individual plates may be changed by removing the adjacent cap plates.

Design and construction were handled by the United States Pipe and Foundry engineering department, Edward Hering, chief engineer, R. Landberg, construction engineer, and J. E. Tinstman, former resident manager of Scottdale plant.

General contractor for the project was United Engineers and Constructors, Inc., Philadelphia, with W. C. Bodycomb, superintendent, Mandrup Skele, project engineer, and A. E. Shannon, field accountant. Subcontractors and material firms were:

Foundations—Stein Construction Co.
Brickwork—J. E. Norris Co.
Electrical work—Terrell Electric Co.
Motors and controls—General Electric Co.
Cranes and hoists—Shepard-Niles Crane & Hoist Corp.
Tumbling mills—W. W. Sly Co.
Sand blast equipment—Pangborn Corp.
Structural steel—Virginia Bridge Co. and Converse Bridge & Steel Co.
Heating ovens—R-S Products Corp.
Cranes and core ovens—Whiting Corp.
Molding machines—Herman Pneumatic Machine Co.
Corrugated wire glass sash — Eberle & White, Inc.
Exhausters, shavings system heating and ventilating—B. F. Sturtevant Co.
Roofing, siding and painting—Mike Gigis Co.
Usicast roof—United States Pipe & Foundry Co.

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A revolutionary improvement! Now there is no need to measure or mark Bestwall for stud spacing. Bestwall is Nail-Marked . . . ready to nail—a saving of 10% or more in time.

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The plastic compounds are:

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Elevated Storage Tanks for Greater Efficiency in Municipal Water Service

CONCORD, N. C., with a population of 15,000, recently installed a modern elevated water storage tank to improve its water distribution system. To accommodate 3500 customers and an average daily consumption of 1,500,000 gallons, a larger 500,000-gallon ellipsoidal bottom, elevated storage tank of steel was installed by the Chicago Bridge & Iron Works.

The new tank has an ellipsoidal roof which is joined directly to the tank shell. This type of roof, which has been used to some extent lately, is the result of efforts to improve the appearance of elevated tanks by design rather than by extensive ornamentation.

With this type of elevated tank all of the capacity is at a sufficient elevation to give adequate pressure which is said not to have been the case in the old type of standpipe when the water level drops below a certain point, because the pressure from the remaining water in the standpipe is not sufficient to give adequate service through all portions of the distribution system.

Sulphur Output 25 Per Cent Above 1935

PRODUCTION of sulphur in the United States in 1936, practically all from Texas and Louisiana, amounted to 2,015,231 tons and shipments were 1,967,713 tons valued at $35,400,000, according to the Bureau of Mines. There was a gain of 23 per cent in production over 1935 and shipments increased 20 per cent. The 3,100,000 tons of sulphur at the mines on December 31, 1935, remained unchanged at the close of 1936. Production was reported from Texas, Louisiana, California and Utah.

Texas increased its output 37 per cent in 1936 when 1,723,292 tons were mined. Shipments of 1,630,719 tons gained 20 per cent over 1935. Properties contributing to the 1936 production were those of the Duval Texas Sulphur Company, Bowling, Tex.; Freeport Sulphur Company, Freeport; and the Texas Gulf Sulphur Company, at Long Point, Gulf, and Newgulf, all in Texas.

Sulphur production in Louisiana was 288,099 tons and shipments 333,475 tons, the Freeport Sulphur Company and the Jefferson Lake Oil Co., being the producers.

California and Utah mined 3,840 tons of sulphur in 1936.

The average quoted price of sulphur throughout 1936 was $18 f. o. b. mines.

Mississippi Industrial Commission Approves Two New Plants

WITH the announcement of its approval of two new plants in Mississippi, the newly formed Mississippi Industrial Commission, Jackson, issued its first statement of policy. Financial standing, labor record, and established practices of new industries seeking locations in the State will be definitely determined before approval is given, this statement said. H. O. Hoffman is Chairman of the body.

"These turbulent years through which we have been passing have forcibly brought home to us the conviction that there must ben an expansion of Mississippi opportunity . . . At this time Industry is 'starting over again.' There is a definite trend toward the South. The reason for this definite trend is obvious to all. We have a climate incomparably superior to that of any other section of the country . . . Our highways and transportation facilities have been developed to an extent that we are on a par with any other section of the country . . ." the statement said.

It continued in part,

"We give to our fellow citizens the assurance that we will approve no new enterprise or industry until and unless we are convinced that its coming will be of benefit to Mississippians. The Commission expects to know the financial standing of such industries as well as their public policy and labor record. We expect to invite into our State only such companies as are fair to Labor. There is no place in the industrial life of our State for the 'sweat shop,' and this Commission will offer none of our advantages to this type of industry."

New plants approved to date include a hosiery mill at Durant, for the Real Silk Hosiery Mills, Indianapolis, Ind., and a garment plant at Amory, for I. R. Longnecker and Edwin M. Wilson, formerly connected with Weaver Pants Co. Corinth, Miss.

Large Attendance Expected at Southern Textile Show

The 12th Southern Textile Exposition to be held at Greenville, S. C., April 5-10 is to be largely attended as the industry has been unusually active for many months. In addition to technical meetings during the week, mill executives will have opportunity to view latest machinery developments.

Air Conditioning Trend Points South

(*Continued from page* 41)

generated in winter conditioning systems, coming in contact with the cold surfaces of such materials, condenses inside the wall spaces, damages the insulation by rotting it, and soon impairs its efficiency.

For the protection of the good name of air conditioning and of manufacturers' and builders' reputations, the most important elements in the field of insulation are working cooperatively with the engineering society for the correction of these troubles by the establishment of standards for the proper application of insulating materials based on studies giving more complete knowledge of the inherent characteristics of the materials.

Research to Solve Many Problems

This insulation research is one of many basic investigations being undertaken by some three hundred scientists and a dozen university laboratories bent on the solution of problems which are of vital importance to air conditioning, heating and ventilating.

This research ranges from inquiries into the relation of climate to air conditioning fundamentals, the extension of air conditioning to the treatment of disease and the question of how to give indoor air the same tang that is so often present in outdoor air to corrosion in heating systems, the frictional resistance to air flow in ducts and the problem of minimizing sound in air conditioning systems, to mention but a few of the problems upon which the research committee of this engineering society is working.

Among the Southern institutions cooperating with the Committee on Research is the Texas Agricultural and Mechanical Engineering College, which recently completed an interesting study to determine the correct requirements for summer cooling. Its findings are to become the standard for the entire Southern part of the country.

In all, no less than 21 technical subcommittees are at work on close to half a hundred basic problems that are guiding the air conditioning industries into a period of spectacular service to the American public and American industry.

THE work of more than 200 physicists, physiologists, medical men and thermal engineers participating in American Society of Heating and Ventilating Engineers research at its own laboratory and at those of a dozen cooperating universities is laying the foundation of scientific knowledge on which this growing industry rests.

Several million dollars have been expended on research by industrial laboratories and the Society. A fund of $100,000 is now being raised for continued work.

The average business man who enjoys the comfort of an air conditioned train or building does not realize that exhaustive experiments on the relation of air conditions to health, investigation of heat losses from buildings and the establishment of scientific standards are responsible for his comfort.

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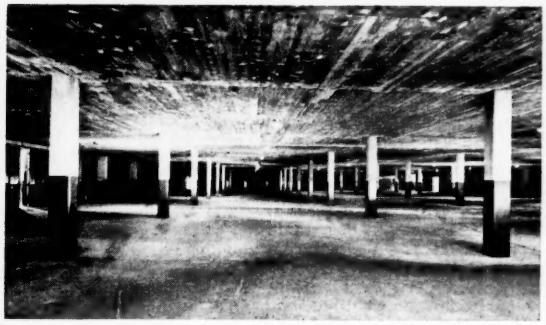

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Amend Undistributed Profits Tax

REFERRING to the strong representations being made to the Georgia delegation in Congress to amend the undistributed profits tax imposed on corporations, the Macon, (Ga.) *Telegraph*, says in part:

"The amendment would permit the corporations to deduct the amounts spent in payment of debts from the profits subject to taxation and the same exemption would be made on such sums as are used for the extension and improvement of the plant of such corporation.

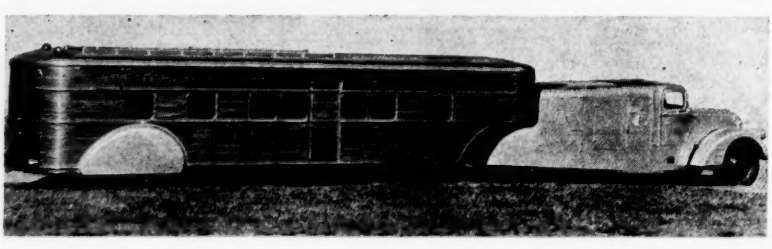
"The whole theory of the undistributed profits tax is vicious and the act should be repealed as a whole. It is a penalty on thrift and conservative business practices. It was never intended as a revenue measure. Its whole purpose was to force corporations to aid in a fantastic plan of the more equal distribution of wealth.

"The dangers of the measure were pointed out before it became law and its evil results in practice have already been apparent. It would be impossible to estimate how much harm has already been done."

Stainless Steel Sleeper Bus

For use in the Syrian Desert between Bagdad and Damascus, a light weight, stainless steel sleeper bus of 14-passenger capacity has been delivered by the Edward G. Budd Manufacturing Company, Philadelphia, Pa., to the Nairn Transport Company, Ltd. The bus is air conditioned, designed especially for desert travel, with design and construction following closely the design of railway equipment built by the Budd company of light-weight stainless steel through its "Shotweld" process. This sleeper is the first of its type ever constructed, and was specially designed to operate under extreme temperatures and road conditions encountered in the 600-mile desert run, where only 200 miles of the route follow an established road. Pulled by a 150-horsepower Diesel tractor, the unit is expected to cut nine hours from the existing 24-hour schedule now in effect between the two cities. It has a top speed of 65 miles an hour. The power unit was built by Van Dorn Iron Works, of Cleveland, Ohio, and air conditioning equipment and interior finish installed by Fitz Gibbon and Crisp, of Trenton, N. J. Firestone Tire and Rubber Company, Akron, Ohio, built special 300 by 20 tires, carrying from 25 to 30 pounds of air, for use on both the tractor and trailer.

New Type Sleeper Trailer



Chemurgic Conferences

THE third general Chemurgic Conference, sponsored by the Chemical Foundation and the Farm Chemurgic Council, is to be held at Detroit and Dearborn, Mich., May 25-27. These annual meetings of representatives of agriculture, industry and science are dedicated to the purpose of advancing the use of farm products through applied science. Substantial progress has been made in this work during the past two years with results especially promising in the greater interest in and utilization of Southern raw materials.

Regional conferences are being held prior to the third annual meeting at Dearborn. Following the one scheduled at Gainesville, Fla., February 20, other meetings are to be held at Macon, Ga., April 9-10 and Jackson, Miss., April 12-13. Sponsors for the conference at Macon are the University of Georgia, Georgia School of Technology and Chambers of Commerce, while at Jackson, the Mississippi State College of Agriculture, State Agricultural Commission and farm organizations will provide sponsorship. The Farm Chemurgic Council will cooperate with all regional conferences.

The Place of Forests

(*Continued from page 36*)

turn to the owners. Pulpwood or sawtimber should be harvested with a view to maximum production from the land that is being operated. I make a plea on behalf of the lumber industry that in the cutting of pulpwood the possible returns from the land in the form of naval stores and sawtimber be given equal weight. Most foresters who have given silvicultural systems in Southern types consideration are in agreement that, with the prolific reproductive capacity of the Southern forests, all of the pulpwood that can be absorbed may be removed in the form of cultural and improved cuttings and in the form of thinnings. This process will assure not only the maintenance of pulp and paper plants but also the continued operation of the sawmill industry.

Farmers owning woodlands should be brought to an appreciation that in the harvesting of the timber crops from their lands, if due consideration is given to the financial rewards for the production of diversified products and the maintenance of maximum wood production, it is possible to build for themselves assets in the form of sawtimber or naval stores without materially reducing their current revenues from the sale of pulpwood.

Vital in this entire process, is a campaign of education that will render every farmer and every timberland owner conscious of his forest resource as a renewable resource and forest-wise to the extent that he appreciates the operation from the standpoint of a business enterprise. Upon the shoulders of men engaged in educational work among the land owners of the South rests a heavy responsibility—a responsibility that must be redeemed quickly if practices are not to be initiated markedly adverse to the public interests. Left to an uncharted course and without proper educational effort, nothing less than a disaster can result. I believe the necessary basic research has developed adequate material to work with in a planwise management of Southern forest lands.

All thinking foresters, and I believe, all thinking agricultural economists interested in the future well-being of the people dealing with the land, should appreciate the full potentialities of the existing situation.

SOME of the enormous pulp mills being established in the South will require, if they are to remain as a sustained industry and not upon the basis of liquidation with the consequent tragedies of migratory employment and tremendous loss of public investments in the form of schools and other public improvements, as much as 500,000 acres of productive forest lands, properly managed. These mills can either obtain wood from land in their possession or from other owners. If in their ownership, these mills must be brought to an understanding that it is not in the public interest to leave behind their cutting operations a land devastated to the point that it will be thrown back upon the public through tax delinquency and become a public burden. If wood is obtained from other owners, these owners should be brought to understand that their lands can be made permanently profitable and productive of a continuous revenue if properly managed. Unless the habitual thinking and processes of the harvesters of forests can be changed in connection with pulpwood operations, there exists all the possibilities of abandoned mills, dying towns and the tragedy of unnecessary loss of opportunities for employment. If proper management can be brought about voluntarily through educational processes, a certain solution is offered. If not, clearly the Southern states for their own salvation and with proper consideration of the rights of owners and operators, must resort to some form of regulation.

*Address delivered before recent annual convention of Southern Agricultural Workers at Nashville, Tenn.

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Servicised Sewer Pipe Belt is a bituminous material making a tight, flexible, root-resistant joint. It is wedge shaped and furnished to fit any standard size pipe.

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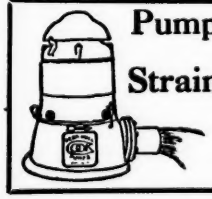

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Will make better wells because they are tailor-made to fit any kind of sand or gravel formations and to resist the corrosion of any water.

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Northern Hard Rock Maple Flooring

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MEMBERS OF MAPLE FLOORING MANUFACTURERS ASSOCIATION

Huge Figures Needed to Describe San Francisco-Oakland Bridge

THE cost of the San Francisco-Oakland bridge, the greatest structure of its kind in the world, was $77,000,000. The huge figures of its dimensions, and the material used, show the magnitude of the undertaking. Its total length is 8¼ miles, of which 4½ miles are over water. It is a double deck structure with six lanes for automobiles on the upper roadway, and three lanes for trucks, besides a double track railroad on the lower roadway.

The bridge has 51 piers, six of which are sunk deeper than any other piers in the world. A tunnel is necessary to carry part of the roadway through Yerba Buena Island, and the bore, 52 x 65 feet, is the largest in the world. Construction of the bridge required 200,000 tons of steel and 1,000,000 cubic yards of concrete. The bridge includes the only large twin suspension structure ever built, as well as the longest and heaviest cantilever bridge in the United States, and the third longest in the world.

The United States Steel Corporation has shown a motion sound picture that has aroused the greatest interest wherever seen. It is of such educational value it should be displayed in every school room in the country. It exhibits not only the magnitude of the work, but the engineering problems and construction difficulties that were solved. The American Bridge Co., a Steel Corporation subsidiary, was the constructor, and the American Steel & Wire Co., another Steel Corporation subsidiary, furnished over 30,000 tons of wire and wire rope for the cables.

Tax Limitation---or Tax Exemption?

(Continued from page 37)

From actual operation of over-all tax limitation we can say this:

It does reduce the tax on real estate. In seven states out of the nine for which we have figures the total first year cut was $200,000,000.

An over-all tax limitation forces governmental economies.—In Indiana, in the first year of operation one-half of the amount represented by the lessened real estate tax was made up by reducing operation cost.

Limitation aids education.—Assumption by the State of a major part of school costs has been a natural result of tax limitation. The United States Bureau of Education has recently issued a pamphlet showing this result, notably in the State of West Virginia.

Limitation tends to curb tax delinquency.—In some States it has been found that while total tax levy is less, collections have been so improved that total tax collected from real estate is actually higher.

But an over-all limitation on the real estate tax has its greatest value as a forcing measure for broadening the tax base. Naturally it has met with opposition on the part of interests who have feared this broadening of the tax base. And it has been criticized also by tax theorists on the ground that it would tend to disorganize or curtail governmental services.

Municipal officials have, naturally enough, been reluctant to take the plunge from their old-time source of support to any other form of support, however clearly they may see that the obsolete property tax, which no other civilized nation depends upon to the extent we still do, becomes in times of depression a wholesale confiscation of the capital assets of the citizens by the government, or however clearly they may realize that taking over lands for back taxes will neither pay for municipal services nor maintain municipal credit.

Increases South Atlantic Steamship Service

Increasing its fleet from 28 to 33 vessels, the American-Hawaiian Steamship Company, San Francisco, Calif., operating an extensive service in intercoastal trade, will greatly expand its service to South Atlantic shippers and consignees, according to Dearborn Clark, traffic manager. The addition of the five ships brings the company's South Atlantic fleet to twelve which will be divided into two parts—one providing Eastbound sailings every 16 days to Charleston, Baltimore, Norfolk, New London and Bridgeport, and the other affording the same frequency Eastbound to the Porto Rican ports of Ponce and San Juan, and to Jacksonville, Savannah, and Wilmington, N. C. Westbound joint service with the Arrow Line will be continued, and, with the five steamers added, the frequency from Baltimore and Norfolk will be increased to a 5-5-6-day basis, and that from Charleston, Savannah and Jacksonville to a 10-11-day basis. The Williams Steamship Corporation, wholly owned subsidiary, has been dissolved and the trade name, "Williams Line" has been dropped. Its fleet and other assets have been taken over by American-Hawaiian Co.

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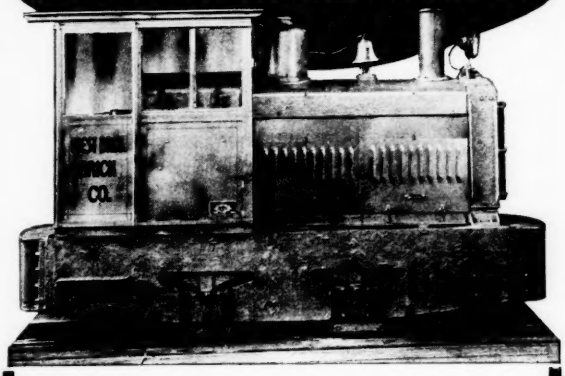
"Short"

WITH HIGH HAULAGE COSTS



● Haulage is an important item in production costs. Users of Whitcomb Locomotives throughout the world supply thousands of reports of cost-cutting evidence. These husky, compact, modern haulage machines will get your material from shop to shop in quicker time and at lower cost—provide rapid, flexible, dependable, easily handled haulage power with unmatched economy. They save in haulage costs per ton, and in maintenance. No standby fuel losses—no time lost in getting up steam, handling coal and cleaning fires.

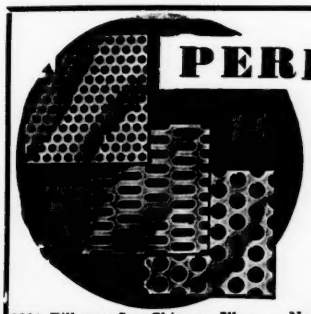
THERE IS A TYPE AND SIZE OF EQUIPMENT SUITED SPECIFICALLY TO YOUR PLANT LAYOUT.

Gasoline or Diesel Mechanical Drive
Gasoline or Diesel Electric Drive
Electric Storage Battery
Electric Trolley
Combination Trolley—Storage Battery

Whitcomb Engineers will survey your requirements and estimate the savings you can make by an investment in Whitcomb equipment.

THE WHITCOMB LOCOMOTIVE COMPANY
Subsidiary of The Baldwin Locomotive Works Plant at Rochelle, Illinois, All sales made by The Baldwin Locomotive Works, Paschall Station Post Office, Philadelphia, Pennsylvania.

WHITCOMB LOCOMOTIVES



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of every sort
for Screening, Grading, Ventilating or any industrial purpose. Also Grilles of many beautiful designs.

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The Harrington & King Perforating Co.

PERFORATED METALS
Screens . . . . Grilles

Extensive facilities and long experience make Hendrick the logical source for all perforated metals . . . screen plate with any shape opening, round, square, hexagonal, squaround,* slotted, corrugated . . . heating and ventilating grilles of every description. Hendrick can furnish them in any desired commercially-rolled metal. *Reg. U. S. Pat. Off.

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44 Dundaff Street, Carbondale, Pa.
Manufacturers of Mitco Open Steel Flooring, Mitco Shur-Site Treads and Mitco Armorgrids.

PERFORATED METAL SCREENS
MUNDT PRODUCTS

embody a degree of perfection derived from 68 years' manufacturing perforated metals.

We will give you the benefit of this experience.

Consult us before placing your order.

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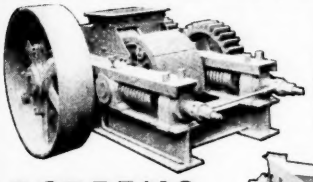
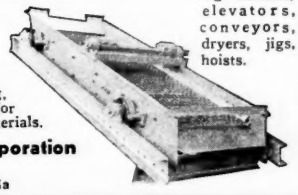
490 JOHNSTON AVE., JERSEY CITY, N. J.

McLANAHAN EQUIPMENT



CRUSHERS
Single and double roll and jaw crushers, hammer mills, super dry pans, — steel log washers and scrubbers, sand drags, revolving and vibrating screens, elevators, conveyors, dryers, jigs, hoists.



SCREENS
Complete portable, semi-portable and stationary crushing, screening and washing plants for different capacities of any materials.

McLanahan & Stone Corporation
Established 1835
Hollidaysburg, Pennsylvania

Growth of Purchasing Agents Association

By

Chas. S. Gantt

PRIOR to 1915 the association together of purchasing agents of various firms, especially competitors, was frowned upon by the "powers that be" as "not being done." But about that time purchasing agents in different localities conceived the idea that it would be mutually helpful to meet together and discuss problems confronting all of them in common; to bring certain features of buying into a standardized form; and endeavor to remedy some of the more blatant abuses which were then rampant. An Association was formed in New England and one in New York City. Then the question was put before the purchasing agents throughout the country and slowly took hold, resulting in the organization of a National Association of Purchasing Agents under the militant Secretaryship of L. F. Boffey, himself a purchasing agent. The movement rapidly grew, for by 1919 the Association had between 800 and 900 members, with a buying power of about $4,000,000,000 and reaching in 1929 a membership of around 5500, including 500 in Canada.

The National Association does not dominate the several local associations, but rather the Locals dominate the National office. Each Association elects a National Director who thereby becomes a member of one of the District Councils, of which there are nine. A Vice President, nominated by the Associations in a given District, is elected at the National Convention to serve for one year. To this Council all matters pertaining to the Associations individually or collectively are referred, and the wishes of the District are made known to the Executive Committee of the National Association, and through the Executive Committee presented to the National Convention for action.

A central office is maintained in New York City, at 11 Park Place, where all possible data are collected and filed on commodities of all kinds, source of supply, price trends, and information that may be of interest to any one purchasing agent. These data, and any other assistance the National office can give, is open to every member of every Association affiliated with the National Association. Through his membership in the Local the member automatically becomes a member of the National Association of Purchasing Agents.

In order that every purchasing agent in the country may become a member of the National Association of Purchasing Agents, membership in the Local is represented by the resident or local members, and by the non-resident or out-of-town members, who, because of distance, do not find it feasible to regularly attend the monthly meetings. There has been no time when the purchasing agent is more in need of the assistance he will get from such an Association, with the Patman bill and the proposed re-incarnation of the NRA and other similar legislation creating new problems for business.

At the present time there are available four local Associations south of the Mason and Dixon line through which Southern purchasing agents may obtain affiliation with the National Association, including:

Purchasing Agents Association of Baltimore,
Karl E. Yount, Secretary,
Standard Lime & Stone Co.,
First National Bank Building,
Baltimore, Md.

Virginia-Carolinas Association of Purchasing Agents,
A. S. Bower,
Director of N. C. State Division of Purchase and Control,
Raleigh, N. C.

Purchasing Agents Association of New Orleans,
F. J. Basile, Secretary,
National Bank of Commerce,
New Orleans, La.

Purchasing Agents Association,
Atlanta, Ga.

Streamlined Low-Priced Trucks

With the introduction of the new Indiana truck models 86 and 87, complete and distinctive streamline style has been brought to the low-price truck field, according to F. T. Macrae, Jr., vice president of the Indiana Division of the White Motor Company, Cleveland, Ohio. The new trucks feature a completely new radiator front, grill and hood all streamlined, with a sloping V-shaped windshield. Both models are powered by Hercules six cylinder JXB engines of 293 cubic inch displacement, rating 31.54 horse power.

G & F Agricultural and Industrial Agent

The appointment of W. E. Aycock as agricultural and industrial agent of the Georgia and Florida Railroad has been announced by H. W. Purvis, receiver and general manager, Augusta, Ga. Mr. Aycock, whose appointment became effective February 1, has his headquarters at Moultrie, Ga.

HELLO!

Our first visit to you by way of these pages. A series of advertisements will start next issue, each describing some advantages of our specialties.

THE GIBSON AND KIRK CO.
Founders of Non-Ferrous Castings
WARNER & BAYARD STS. BALTIMORE, MD.
Established 1860

CLEAN, PRECISE CASTINGS
IRON, BRASS, BRONZE, ALUMINUM AND ALLOYS.
QUANTITY PRODUCTION. CONTRACT WORK.
The **RICHMOND** FOUNDRY & MANUFACTURING CO. *Inc.*
Richmond • Virginia
MODERN MACHINE and PATTERN SHOPS.
"A Dependable Source of Supply"

GALVANZIING
(HOT DIPPED PROCESS)
The largest job galvanizing plant in the United States
GALVANIZED PRODUCTS FURNISHED
Joseph P. Cattie & Bros.. Philadelphia, Pa.

PRESSED METAL ARTICLES
from dies to finished product.
DESIGNING AND DEVELOPING
established 29 years
PARSONS SPECIALITY & MACHINE WORKS
PHILADELPHIA

INVESTIGATE THE ECONOMIES AND ADVANTAGES OF —:
FREDERICK STOKERS
THE FREDERICK IRON & STEEL CO. -:- FREDERICK, MD.
ALSO A COMPLETE LINE OF CENTRIFUGAL PUMPS

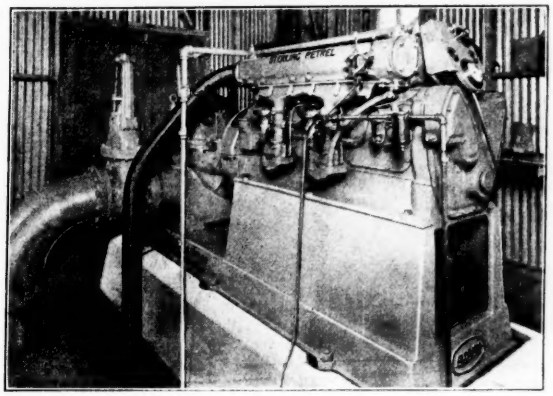
SPECIFICATIONS GRATIS

For Emergency Power Plants

Sterling High Duty Internal Combustion Engines

Sterling — The Engine of Refinement

A complete draft of specifications, quickly amendable for any specific project, is offered. Years of experience are available on call. Installation diagrams show how to install.



The Alabama Water Service Co., Birmingham, Ala., employs a Sterling Petrel C-5 cylinder engine, 145 HP. driving an Aldrich centrifugal pump at 1500 RPM.

STERLING ENGINE COMPANY

Home Office and Plant
1270 Niagara St.
Buffalo, N. Y.

Dept. C-7

Branch Office
900 Chrysler Bldg.
New York, N. Y.

1905 Strand 1937

FLEXIBLE SHAFT MACHINES

FOR MANY INDUSTRIES
⅛ to 2 H.P.
HIGH QUALITY EQUIPMENT ONLY

SEND FOR CATALOG

N. A. STRAND & CO.
5001 NO. LINCOLN ST., CHICAGO

FOR THEIR GREATER SERVICE USE

SHIMER SUCCESS PLANING MACHINE KNIVES AND BITS,

Surfacing Knives and many Knives of smaller proportions for special duty in wood cutting. It will be to your advantage to look into this feature of our service. Our prices, too, are very attractive if you take in consideration their extra wear.

Samuel J. Shimer & Sons, Inc.
MILTON, PA.

MACHINE SCREWS SQUARE AND HEXAGON NUTS

Specialists in upset work.
Write for prices, if special submit samples advising as to quantity required.

THE PROGRESSIVE MANUFACTURING CO.
TORRINGTON, CONN.

TRADE LITERATURE

KOPPERS PRODUCTS—
Booklet—"Products of Koppers and Associated Companies," listing divisions, affiliates, and subsidiaries, together with the products manufactured by each; designed to present a clear understanding of the importance and breadth of the company's new corporate structure.
Koppers Company, Pittsburgh, Pa.

ALLIS-CHALMERS PUBLICATION—
Booklet — FACTS, issued periodically for benefit of the Tractor Division sales organization; presenting in words and pictures a comprehensive story of the history, products, achievements and magnitude of the company.
Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

FACTORY LIGHTING PRACTICE—
Handbook—"A Manual of Factory Lighting Practice," presents engineering information on practical easy-to-apply methods of fitting lighting to the seeing requirements of each individual operation in the plant, and discusses 30 common lighting problems found in the average industrial plant.
Benjamin Electric Mfg. Company, Des Plaines, Ill.

INDUSTRIAL PACKINGS—
Manual—for engineers, plant operatives and executives, designed to insure the efficient application of industrial packings to the specific purposes for which they are intended.
United States Rubber Products, Inc., New York, N. Y.

BRUCE PRODUCTS—
Office Publication—"Bruce Every Month," devoted to Bruce products and their applications, including hardwood floorings, Southern hardwoods, yellow pine, hardwood dimensions, Ceda'line, X-ite, Bruce preservatives, Bruce asphalt paints, Terminix, Bruce floor finishes, etc.
E. L. Bruce Company, Memphis, Tenn.

DIESEL POWER UNITS—
Bulletin 3600-A1—construction and application of Fairbanks-Morse Model 36 Diesel Power Units, offered in two cylinder sizes and in various combinations, with rating as low as 10 horsepower.
Fairbanks, Morse & Co., Chicago, Ill.

WELDING MODERN ALLOYS—
Booklet—"How to Weld 29 Metals," comprehensively covering the procedure, conditions and materials for welding modern alloys; prepared by Charles H. Jennings.
Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa.

PRESSURE REGULATOR SELECTOR CHART—
Chart—designed for quick and accurate selection of the proper type of pressure reducing valve for any given service on steam, gas, air, oil, or water.
Davis Regulator Company, Chicago, Ill.

RUBBER HOSE FOR INDUSTRY—
Catalogue, 1937—easily accessible information on rubber hose for industrial use, entitled "U. S. Hose Catalogue," illustrated, a section devoted to hose couplings and fittings.
United States Rubber Products, Inc., New York, N. Y.

WHEELS FOR TRANSPORTATION—
Catalog No. 20—"Geneva Security Wheels For Modern Transportation," illustrating and describing many types, covering wheels for farm equipment, road, street and building equipment, factory and industrial equipment, etc.
The Geneva Metal Wheel Company, Geneva, Ohio.

CHEMISTS AND CHEMICAL ENGINEERS—
Directory—of members of the Association of Consulting Chemists and Chemical Engineers, Inc., a membership corporation chartered under the laws of the State of New York, numbering in its membership consulting chemists, chemical engineers and directors of other related consulting and testing organizations; information from—
Association of Consulting Chemists and Chemical Engineers, Inc., Dr. Bernard L. Oser, Secretary, 50 East 41st Street, New York.

GRINDING WHEELS AND MACHINES—
Booklet—Grinding Wheel Specifications for Grinding Machines, illustrated, with price lists, etc.
Norton Company, Worcester, Mass.

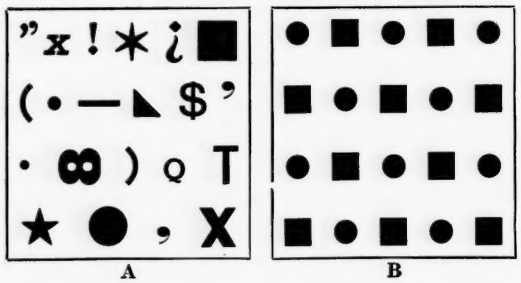
TARMAC FOR ROADS—
Handbook—complete tables and general information as to the use of Tarmac for road construction and maintenance, with other useful data.
Koppers Company, Tar and Chemical Division, Pittsburgh, Pa.

FIRE BRICK—
Booklet—"EMPIRE—The World's Finest Quality Fire Brick," illustrated, detailing advantages of this product and showing how fire brick are made in a modern fire brick plant.
A. P. Green Fire Brick Co., Mexico, Mo.

DIRECT-FIRING PULVERIZED-COAL SYSTEM—
Booklet—The B & W Direct-Firing Pulverized-Coal System, outlines the present wide use of pulverized-coal firing for power boilers and other applications, and details the efficiency of the direct-firing pulverized-coal system from bin to burner.
The Babcock & Wilcox Company, New York.

LEATHER PRODUCTS—
Booklet—devoted to the Alexander line of leather belting and industrial leathers.
Alexander Brothers, Inc., Philadelphia, Pa., Southern branch Charlotte, N. C.

WRIGHT HOISTING EQUIPMENT—
Catalog—devoted to Wright Hoists, Trolleys and Cranes, with special emphasis on the Wright Improved Model High Speed Hoist, containing suggestions on choosing a hoist as well as engineering tables on trolleys, cranes and I-beams, and a special section on Wright Electric Hoists.
Wright Manufacturing Division of American Chain & Cable Company, Inc., York, Pa.



A B

Hodgepodge or Harmony?

Apply this principle to your Packaging!

Which is more pleasing to the eye, Panel A or B? One is a "crazy quilt" of figures, while the other is a harmonious design. Some firms have a variety of different styled wrappings, or a number of products packed in different containers. The result is a hodgepodge of designs without relation to each other, or devoid of any one style.

Our "Co-ordinated Packaging" will obviate such a hodgepodge and give your line a distinctive style, easily identified, and with advertising value for your entire line. Besides, it will effect economy in production.

MAY WE SUBMIT SUGGESTIONS—WITHOUT OBLIGATION?

Folding and set-up boxes, cartons, counter and window displays, and shipping containers.

OLD DOMINION BOX CO., Inc.
LYNCHBURG, VIRGINIA
Winston-Salem, N. C. Burlington, N. C. Asheboro, N. C.
Pulaski, Va. Martinsville, Va. Charlotte, N. C. Kinston, N. C.

Old Dominion Paper Boxes

ENVELOPES
Direct from Manufacturer to Consumer

PLAIN and PRINTED
All Sizes and Styles

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Sales Offices, Washington, D. C., Atlanta, Ga.

THE OSCAR T. SMITH & SON CO.
Manufacturing
BANK AND COMMERCIAL STATIONERS
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BALTIMORE, MD.
CHARACTER QUALITY
——SERVICE——